SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

WATERSHED WATER QUALITY ASSESSMENT

SALKEHATCHIE RIVER BASIN



OCTOBER 2003

PREFACE

In 1993, the South Carolina Department of Health and Environmental Control (SCDHEC) published the first in a series of five watershed management documents. The first in that series, Watershed Water Quality Management Strategy: Savannah-Salkehatchie Basin communicated SCDHEC's innovative watershed approach, summarizing water programs and water quality in the basins. The approach continues to evolve and improve.

The watershed documents facilitate broader participation in the water quality management process. Through these publications, SCDHEC shares water quality information with internal and external partners, providing a common foundation for water quality improvement efforts at the local watershed or large-scale, often interstate, river basin level.

Water quality data from the Salkehatchie River Basin was collected and assessed at the start of this third five-year watershed management cycle. This updated atlas provides summary information on a watershed basis, as well as geographical presentations of all permitted watershed activities. A waterbody index and a facility index allow the reader to locate information on specific waters and facilities of interest.

A brief summary of the water quality assessments included in the body of this document is provided following the Table of Contents. This summary lists all waters within the Salkehatchie River Basin that fully support recreational and aquatic life uses, followed by those waters not supporting uses. In addition, the summaries list changes in use support status; those that have improved or degraded over the five years since the last strategy was written. More comprehensive information can be found in the individual watershed sections. The information provided is accurate to the best of our knowledge at the time of writing and will be updated in five years.

General information on Salkehatchie River Basin Watershed Protection and Restoration Strategies can be found under that section on page 26, and more detailed information is located within the individual watershed

As SCDHEC continues basinwide and statewide water quality protection and improvement efforts, we are counting on the support and assistance of all stakeholders in the Salkehatchie River Basin to participate in bringing about water quality improvements. We look forward to working with you.

If you have questions or comments regarding this document, or if you are seeking further information on the water quality in the Salkehatchie Basin, please contact:

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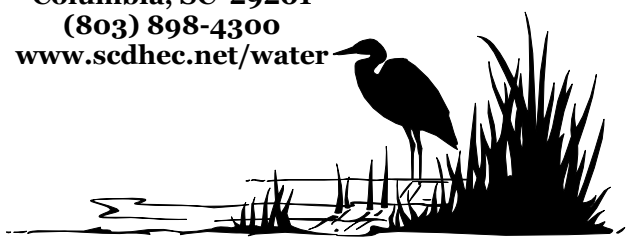

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Water Quality Assessment Summary

Salkehatchie River Basin

TERMS USED IN TABLES

AQUATIC LIFE USE SUPPORT (AL) - The degree to which aquatic life is protected is assessed by comparing important water quality characteristics and the concentrations of potentially toxic pollutants with standards. Aquatic life use support is based on the percentage of standards excursions at a sampling site.

For **dissolved oxygen** and **pH**:

If the percentage of standard excursions is 10 percent or less, then uses are ***fully supported***.

If the percentage of standard excursions is between 11-25 percent, then uses are ***partially supported***.

If the percentage of standard excursions is greater than 25 percent, uses are ***not supported*** (see p.11 for further information).

For **toxins** (heavy metals, priority pollutants, chlorine, ammonia):

If the acute aquatic life standard for any individual toxicant is not exceeded, uses are ***fully supported***.

If the acute aquatic life standard is exceeded more than once, but is less than or equal to 10 percent of the samples, uses are ***partially supported***.

If the acute aquatic life standard is exceeded in more than 10 percent of the samples, based on at least ten samples, aquatic life uses are ***not supported*** (see p.11 for further information).

RECREATIONAL USE SUPPORT (REC) - The degree to which the swimmable goal of the Clean Water Act is attained (recreational use support) is based on the frequency of fecal coliform bacteria excursions, defined as greater than 400/100 ml for all surface water classes.

If 10 percent or less of the samples are greater than 400/100 ml, then recreational uses are said to be ***fully supported***.

If the percentage of standards excursions is between 11-25%, then recreational uses are said to be ***partially supported***.

If the percentage of standards excursions is greater than 25%, then recreational uses are said to be ***nonsupported*** (see p.13 for further information).

Excursion - The term excursion is used to describe a measurement that does not comply with the appropriate water quality standard.

Table 1. Fully Supported Sites in the Salkehatchie River Basin

* = Station not evaluated for Recreational Support

Watershed	Waterbody Name	Station #	Improving Trends	Other Trends
03050207-010	Rosemary Creek	CSTL-588*		
	Buck Creek	CSTL-578*		
	Salkehatchie River	CSTL-028*	Decreasing BOD5, Total Phosphorus, Total Nitrogen, Fecal Coliform	Decreasing pH
03050207-020	Turkey Creek	CSTL-056*		
03050207-030	Toby Creek	CSTL-577*		
	Birds Branch	CSTL-579*		
03050207-040	Salkehatchie River	CSTL-104		
	Savannah Creek	CSTL-053*		
03050207-050	Jackson Creek	CSTL-051*		
03050207-060	Little Salkehatchie River	CSTL-566*		
		CSTL-115		
03050207-070	Lemon Creek	CSTL-576*		
03050207-110	Sandy Run Creek	CSTL-585*		
03050208-010	Black Creek	CSTL-583*		
	Combahee River	CSTL-111	Decreasing BOD5, Turbidity	
		CSTL-098	Decreasing BOD5, Total Nitrogen, Fecal Coliform	Decreasing Dissolved Oxygen; Increasing Turbidity
03050208-030	Horseshoe Creek	CSTL-071		
03050208-040	Ashepoo River	CSTL-069	Decreasing BOD5	Decreasing Dissolved Oxygen; Increasing Turbidity
03050208-050	Coosawhatchie River	CSTL-540*		

Table 1. Fully Supported Sites in the Salkehatchie River Basin

* = Station not evaluated for Recreational Support

Watershed	Waterbody Name	Station #	Improving Trends	Other Trends
03050208-060	Lake George Warren	CSTL-075	Decreasing BOD_5	Increasing pH
		CL-062		
03050208-070	Coosawhatchie River	CSTL-107	Decreasing BOD5, Total Nitrogen, Fecal Coliform	Decreasing Dissolved Oxygen; Increasing pH, Turbidity
03050208-080	Cypress Creek	CSTL-582*		
03050208-090	Broad River	MD-116	Decreasing BOD5, Total Nitrogen	
	Colleton River	MD-176	Decreasing BOD5, Fecal Coliform	Decreasing Dissolved Oxygen
		MD-245	Decreasing BOD5, Total Nitrogen, Fecal Coliform	Decreasing Dissolved Oxygen
	Beaufort River	MD-005	Decreasing BOD5, Fecal Coliform	Decreasing pH
	Skull Creek	MD-013	Decreasing BOD5	Decreasing pH
	Port Royal Sound	MD-006	Decreasing BOD5, Fecal Coliform	Decreasing pH
03050208-100	Coosaw River	MD-168	Decreasing BOD5, Total Nitrogen, Fecal Coliform	
03050208-110	May River	MD-016	Decreasing BOD5	
	Broad Creek	MD-174	Decreasing BOD5, Total Nitrogen	
	Calibogue Sound	MD-175	Decreasing BOD5, Total Nitrogen	

Table 2. Impaired Sites in the Salkehatchie River Basin

REC=Recreational; AL=Aquatic Life; PS=Partially Supported Standards; NS=Nonsupported Standards; *=Station not evaluated for Recreational Support; T=TMDL Developed

Watershed	Waterbody Name	Station #	Use	Status	Water Quality Indicator	Undesirable Trends	Other Trends
03050207-020	Turkey Creek	CSTL-001B	REC	PS	Fecal Coliform		Decreasing pH
	Lake Edgar Brown	CL-064	AL	NS[T]	Chlorophyll-*a*		
03050207-030	Salkehatchie River	CSTL-003	REC	PS	Fecal Coliform		Decreasing pH
03050207-040	Salkehatchie River	CSTL-048	REC	PS	Fecal Coliform		
		CSTL-006	REC	PS	Fecal Coliform		Increasing pH
03050207-050	Whippy Swamp	CSTL-076	REC	PS	Fecal Coliform		
03050207-070	Lemon Creek	CSTL-116	REC	PS	Fecal Coliform		
03050207-080	Little Salkehatchie River	CSTL-117	REC	PS	Fecal Coliform		
03050207-090	Buckhead Creek	CSTL-119	REC	NS	Fecal Coliform		
03050207-100	Willow Swamp	CSTL-118	REC	NS	Fecal Coliform		
03050207-110	Little Salkehatchie River	CSTL-120	REC	PS	Fecal Coliform		
03050208-020	Ireland Creek	CSTL-044	REC	NS	Fecal Coliform		
	Bluehouse Swamp	CSTL-584*	AL	NS	Macroinvertebrates		
03050208-030	Fuller Swamp Creek	CSTL-581*	AL	NS	Macroinvertebrates		
	Chessey Creek	CSTL-580*	AL	NS	Macroinvertebrates		
03050208-040	Ashepoo River	CSTL-068	REC	PS	Fecal Coliform		Increasing pH
		MD-251	AL	NS	Turbidity		

Table 2. Impaired Sites in the Salkehatchie River Basin

REC=Recreational; AL=Aquatic Life; PS=Partially Supported Standards; NS=Nonsupported Standards; *=Station not evaluated for Recreational Support; T=TMDL Developed

Watershed	Waterbody Name	Station #	Use	Status	Water Quality Indicator	Undesirable Trends	Other Trends
03050208-050	Coosawhatchie River	CSTL-110	AL	PS	Dissolved Oxygen	Decreasing Dissolved Oxygen	
		CSTL-121	AL	NS	Dissolved Oxygen		
03050208-070	Sanders Branch	CSTL-108	REC	NS	Fecal Coliform		Increasing pH
		CSTL-010	REC	PS	Fecal Coliform		Increasing pH
		CSTL-011	AL	PS	Macroinvertebrates Dissolved Oxygen		Increasing pH
			REC	NS	Fecal Coliform		
	Coosawhatchie River	CSTL-109	AL	NS	Dissolved Oxygen, pH	Decreasing Dissolved Oxygen	Increasing pH
	Bees Creek	MD-128	AL	PS	Dissolved Oxygen, pH	Decreasing Dissolved Oxygen	
			REC	PS	Fecal Coliform		
03050208-080	Cypress Creek	CSTL-122	REC	PS	Fecal Coliform		
03050208-090	Pocotaligo River	MD-007	AL	NS	Turbidity		Decreasing Dissolved Oxygen; Increasing pH
			REC	NS	Fecal Coliform		
	Broad River	MD-172	AL	PS	Dissolved Oxygen	Decreasing Dissolved Oxygen	
	Chechessee River	MD-117	AL	NS	Dissolved Oxygen	Decreasing Dissolved Oxygen	Increasing Turbidity

Table 2. Impaired Sites in the Salkehatchie River Basin

REC=Recreational; AL=Aquatic Life; PS=Partially Supported Standards; NS=Nonsupported Standards; *=Station not evaluated for Recreational Support; T=TMDL Developed

Watershed	Waterbody Name	Station #	Use	Status	Water Quality Indicator	Undesirable Trends	Other Trends
03050208-090	Beaufort River	MD-001	AL	NS	Dissolved Oxygen	Decreasing Dissolved Oxygen	Decreasing pH
		MD-002	AL	NS	Dissolved Oxygen		Decreasing pH
		MD-003	AL	NS	Dissolved Oxygen		Increasing Turbidity; Decreasing pH
		MD-004	AL	NS	Dissolved Oxygen		
03050208-100	Whale Branch	MD-194	AL	NS	Dissolved Oxygen		Decreasing pH
03050208-120	Great Swamp	MD-129	REC	PS	Fecal Coliform		
03050208-130	New River	MD-118	AL	NS	pH	Increasing Fecal Coliform	
			REC	NS	Fecal Coliform		

Table 3. Changes in Use Support Status

Salkehatchie River Basin Sites that Improved from 1995 to 1999

REC= Recreational; AL=Aquatic Life; FS=Fully Supported Standards; PS=Partially Supported Standards; NS=Nonsupported Standards

Watershed	Waterbody Name	Station #	Use	Status		Water Quality Indicator	
				1995	1999	1995	1999
03050207-010	Salkehatchie River	CSTL-028	AL	NS	FS	Copper	
03050207-030	Salkehatchie River	CSTL-003	AL	NS	FS	Copper	
03050207-040	Salkehatchie River	CSTL-048	REC	NS	PS	Fecal Coliform	Fecal Coliform
		CSTL-104	REC	PS	FS	Fecal Coliform	
03050207-050	Whippy Swamp	CSTL-076	REC	NS	PS	Fecal Coliform	Fecal Coliform
03050207-060	Little Salkehatchie River	CSTL-115	REC	PS	FS	Fecal Coliform	
03050207-080	Little Salkehatchie River	CSTL-117	REC	NS	PS	Fecal Coliform	Fecal Coliform
03050208-010	Combahee River	CSTL-111	AL	NS	FS	Dissolved Oxygen	
03050208-030	Horseshoe Creek	CSTL-071	REC	PS	FS	Fecal Coliform	
03050208-050	Coosawhatchie River	CSTL-121	REC	PS	FS	Fecal Coliform	
03050208-060	Lake Warren	CSTL-075	AL	NS	FS	Dissolved Oxygen	
03050208-070	Sanders Branch	CSTL-011	AL	NS	PS	Dissolved Oxygen	Dissolved Oxygen, Macroinvertebrates
	Coosawhatchie River	CSTL-109	REC	PS	FS	Fecal Coliform	
03050208-090	Skull Creek	MD-013	AL	PS	FS	Dissolved Oxygen	
03050208-100	Coosaw River	MD-168	AL	NS	FS	Zinc	
03050208-110	Broad Creek	MD-174	AL	PS	FS	Dissolved Oxygen	
03050208-120	Great Swamp	MD-129	REC	NS	PS	Fecal Coliform	Fecal Coliform

Table 4. Changes in Use Support Status

Salkehatchie River Basin Sites that Degraded from 1995 to 1999

REC= Recreational; AL=Aquatic Life; FS=Fully Supported Standards; PS=Partially Supported Standards; NS=Nonsupported Standards

Watershed	Waterbody Name	Station #	Use	Status		Water Quality Indicator	
				1995	1999	1995	1999
03050208-020	Ireland Creek	CSTL-044	REC	PS	NS	Fecal Coliform	Fecal Coliform
03050208-030	Fuller Swamp	CSTL-581	AL	PS	NS	Macroinvertebrates	Macroinvertebrates
03050208-040	Ashepoo River	MD-251	AL	FS	NS		Turbidity
03050208-050	Coosawhatchie River	CSTL-121	AL	PS	NS	Dissolved Oxygen	Dissolved Oxygen
03050208-090	Pocotaligo River	MD-007	AL	FS	NS		Turbidity
	Broad River	MD-172	AL	FS	PS		Dissolved Oxygen
	Chechessee River	MD-117	AL	FS	NS		Dissolved Oxygen
03050208-100	Whale Branch	MD-194	AL	FS	NS		Dissolved Oxygen
03050208-130	New River	MD-118	AL	FS	NS		pH

Introduction

The South Carolina Department of Health and Environmental Control (SCDHEC or the Department) initiated its first watershed planning activities as a result of a U.S. Environmental Protection Agency (USEPA) grant in June of 1972. These activities were soon extended by requirements for a Continuing Planning Process under §303(e), "Federal Water Pollution Control Act Amendments of 1972", U.S. Public Law 92-500. In 1975, the SCDHEC published basin-planning reports for the four major basins in South Carolina. A related planning activity resulted from §208 of the Federal Water Pollution Control Act, which required states to prepare planning documents on an areawide basis. Areawide plans were completed in the late 1970's for the five designated areas of the State and for the nondesignated remainder of the State. To date, these plans or their updated versions have served as information sources and guides for water quality management. The Continuing Planning Process, watershed assessments, and 208 plans are elements of South Carolina's overall water quality management plan.

The Bureau of Water emphasizes watershed planning to better coordinate river basin planning and water quality management. Watershed-based management allows the Department to address Congressional and Legislative mandates in a coordinated manner and to better utilize current resources. The watershed approach also improves communication between the Department, the regulated community, and the public on existing and future water quality issues.

Purpose of the Watershed Water Quality Assessment

A watershed is a geographic area into which the surrounding waters, sediments, and dissolved materials drain, and whose boundaries extend along surrounding topographic ridges. Watershed-based water quality management recognizes the interdependence of water quality related activities associated with a drainage basin including: monitoring, problem identification and prioritization, water quality modeling, planning, permitting, and other activities. The Bureau of Water's watershed approach integrates these and other activities by watershed, resulting in appropriately focused water quality protection efforts. While an important aspect of the program is water quality problem identification and solution, the emphasis is on problem prevention.

The Department has divided the State into five regions (areas consisting of one or more river basins), along hydrologic lines, which contain approximately the same number of NPDES permitted dischargers. A Watershed Water Quality Assessment (WWQA) will be created for each major river basin within the five regions and will be updated on a five-year rotational basis. This will allow for effective allocation and coordination of water quality activities and efficient use of available resources. The Salkehatchie River Basin is subdivided into 24 watersheds or hydrologic units within the State of South Carolina. Within the Department's Salkehatchie River Basin are the Salkehatchie River, the Little Salkehatchie River, the Combahee River, the Ashepoo River, the Coosawhatchie River, the Beaufort River/Coosaw River, the New River, and the Wright River. The hydrologic units used are from the 1999 USGS Hydrologic Unit Code for South Carolina, made in cooperation with the USDA Natural Resources Conservation Service and SCDHEC. In an effort to make these units more representative of actual hydrology, SCDHEC has proposed changes to the 1999 map affecting numerous boundaries in the

Salkehatchie River Basin. These changes have been provisionally approved by USGS pending a future statewide update. Appendix A. lists all SCDHEC geographic features (ie. stations, facilities) and any watershed boundary changes that may have occurred as a result of these provisional changes. All water quality related evaluations are made at the 11-digit watershed level. The stream names used are derived from USGS topographic maps. The National Hydrography Dataset (NHD) was the system used in the development of the digital hydrography and stream length estimates. NHD is based on the content of the USGS 1:100,000 scale Digital Line Graph (DLG) hydrography data, integrated with reach (stream) related information from the USEPA Reach File Version 3.0 (RF3) data. Based on the blue line streams of the USGS topo maps, it is likely that portions of the stream network in terms of perennial, intermittent, and ephemeral streams are not represented.

The watershed-based assessments fulfill a number of USEPA reporting requirements including various activities under §303(d), §305(b), §314, and §319 of the Clean Water Act (CWA). Section 303(d) requires a listing of waters located within a watershed that do not meet applicable water quality standards. Section 305(b) requires that the State biennially submit a report that includes a water quality description and analysis of all navigable waters to estimate environmental impacts. Section 314 requires that the State submit a biennial report that identifies, classifies, describes, and assesses the status and trends in water quality of publicly owned lakes. The watershed plan is also a logical evaluation, prioritization, and implementation tool for nonpoint source (§319) requirements. Nonpoint source best management practices (BMPs) can be selected by identifying water quality impairments and necessary controls, while considering all the activities occurring in the drainage basin.

The assessment also allows for more efficient issuance of National Pollutant Discharge Elimination System (NPDES) and State wastewater discharge permits. Proposed permit issuances within a watershed may be consolidated and presented to the public in groups, rather than one at a time, allowing the Department to realize a resource savings, and the public to realize an information advantage.

The Watershed Water Quality Assessment (WWQA) is a geographically-based document that describes, at the watershed level, all water quality related activities that may potentially have an adverse impact on water quality. The Watershed Implementation Staff investigates the impaired streams mentioned in the WWQA to determine, where possible, the source of the impairment and recommends solutions to correct the problems. As part of this effort, the watershed staff is forging partnerships with various federal and state agencies, local governments, and community groups. In particular, the Department's Watershed Program and the Natural Resource Conservation Service (NRCS) district offices are working together to address some of the nonpoint source (NPS) concerns in the basin. By combining NRCS's local knowledge of land use and the Department's knowledge of water quality, we are able to build upon NRCS's close relationships with landowners and determine where NPS projects are needed. These projects may include educational campaigns or special water quality studies.

Factors Assessed in Watershed Evaluations

Surface Water Quality

SCDHEC's Bureau of Water and Bureau of Environmental Services ensure that the water in South Carolina is safe for drinking and recreation, and that it is suitable to support and maintain aquatic flora and fauna. Functions include planning, permitting, compliance assurance, enforcement, and monitoring. This section provides an overview of water quality evaluation and protection activities.

Monitoring

In an effort to evaluate the State's water quality, the Department operates and collects data from a permanent statewide network of primary and secondary ambient monitoring stations and flexible, rotating watershed monitoring stations. The ambient monitoring network is directed toward determining long-term water quality trends, assessing attainment of water quality standards, identifying locations in need of additional attention, and providing background data for planning and evaluating stream classifications and standards.

Ambient monitoring data are also used in the process of formulating permit limits for wastewater discharges with the goal of maintaining State and Federal water quality standards and criteria in the receiving streams in accordance with the goals of the Clean Water Act. These standards and criteria define the instream chemical concentrations that provide for protection and reproduction of aquatic flora and fauna, help determine support of the classified uses of each waterbody, and serve as instream limits for the regulation of wastewater discharges or other activities. In addition, these data are used in the preparation of the biennial §305(b) report to Congress, which summarizes the State's water quality with respect to attainment of classified uses by comparing the ambient monitoring network data to the State Water Quality Standards.

SCDHEC’s ambient water quality monitoring network comprises four main station types: primary (P), secondary (S), watershed (W), and biological (BIO) stations. These station types are listed in the site descriptions preceding the water quality information in each watershed and in Appendices B and C under Ambient Water Quality Monitoring Site Descriptions. Not all parameters are collected at every site. Primary stations are sampled on a monthly basis year round. The static primary station network is operated statewide, and receives the most extensive parameter coverage, thus making it best suited for detecting long-term trends.

Secondary stations are sampled monthly from May through October, a period critical to aquatic life, and characterized by higher water temperatures and lower flows. Secondary stations are located in areas where specific monitoring is warranted due to point source discharges, or in areas with a history of water quality problems. Secondary station parameter coverage is less extensive and more flexible than primary or watershed station coverages. The number and locations of secondary stations have greater annual variability than do those in the primary station network, and during a basin's target year may have parameter coverage and sampling frequency duplicating that of primary or watershed stations.

Watershed stations are sampled on a monthly basis, year round, during a basin's target year. Additional watershed stations may be sampled monthly from May through October to augment the secondary station network. Watershed stations are located to provide more complete and representative coverage within the larger drainage basin, and to identify additional monitoring needs. Watershed stations have the same parameter coverage as primary stations.

Ambient biological trend monitoring is conducted to collect data to indicate general biological conditions of State waters that may be subject to a variety of point and nonpoint source impacts. Ambient biological sampling is also used to establish regional reference or "least impacted" sites from which to make comparisons in future monitoring. Additionally, special macroinvertebrate studies, in which stream specific comparisons among stations located upstream and downstream from a known discharge or nonpoint source area, are used to assess impact.

Qualitative sampling of macroinvertebrate communities is the primary bioassessment technique used in ambient biological trend monitoring. A habitat assessment of general stream habitat availability and a substrate characterization is conducted at each site. Annual ambient biological monitoring is conducted during low flow "worst case" conditions in July - September. Some coastal plain streams that have no flow conditions in the summer months may be sampled in the winter (January-March). This technique may also be used in special studies for the purpose of determining if, and to what extent, a wastewater discharge or nonpoint source runoff is impacting the receiving stream. A minimum of two sample locations, one upstream and one downstream from a discharge or runoff area, is collected. At least one downstream recovery station is also established when appropriate. Sampling methodology follows procedures described in Standard Operating Procedures, Biological Monitoring. Only sites described as ‘BIO’ will collect information on the macroinvertebrate communities used in the ambient biological trend monitoring.

Many pollutants may be components of point source discharges, but may be discharged in a discontinuous manner, or at such low concentrations that water column sampling for them is impractical. Some pollutants are also common in nonpoint source runoff, reaching waterways only after a heavy rainfall; therefore, in these situations, the best media for the detection of these chemicals are sediment and fish tissue where they may accumulate over time. Their impact may also affect the macroinvertebrate community.

Aquatic sediments represent a historical record of chronic conditions existing in the water column, and sediment samples are analyzed at selected monitoring sites. Pollutants bind to particulate organic matter in the water column and settle to the bottom where they become part of the sediment "record". Accumulated sediments not only reflect the impact of point source discharges, but also incorporate nonpoint source pollution washed into the stream during rain events. As a result, contaminant concentrations originating from irregular and highly variable sources are recorded in the sediment. The sediment concentrations at a particular location do not vary as rapidly with time as do the water column concentrations. Thus, the sediment record may be read at a later time, unrelated to the actual release time. Lakes act as settling basins for materials entering the lake system directly from a discharge or indirectly from the land surface washed into streams. Therefore, it is not unusual for lake sediment concentrations to be higher than sediment concentrations found in streams.

The ambient monitoring program has the capability of sampling a wide range of media and analyzing them for the presence or effects of contaminants. Ambient monitoring data from 18 primary (P) stations, 17 secondary (S) stations, 18 watershed (W) stations, and 18 biological (BIO) stations were reviewed for the Salkehatchie River Basin.

Natural Swimming Areas

Although all waters of the State are protected for swimming, some areas are more popular than others and may require closer monitoring. Currently monitored areas are located and discussed in the appropriate watershed evaluations.

Classified Waters, Standards, and Natural Conditions

The waters of the State have been classified in regulation based on the desired uses of each waterbody. State standards for various parameters have been established to protect all uses within each classification. The water-use classifications that apply to this basin are as follows.

Class ORW, or "outstanding resource waters", are freshwaters or saltwaters that constitute an outstanding recreational or ecological resource, or those freshwaters suitable as a source for drinking water supply purposes, with treatment levels specified by the Department.

Class A were freshwaters that were suitable for primary contact recreation. This class was also suitable for uses listed as Class B. As of April 1992, Class A and Class B waters were reclassified as Class FW, which protects for primary contact recreation.

Class B were freshwaters that were suitable for secondary contact recreation and as a source for drinking water supply, after conventional treatment, in accordance with the requirements of the Department. These waters were suitable for fishing, and the survival and propagation of a balanced indigenous aquatic community of fauna and flora. This class was also suitable for industrial and agricultural uses. The main difference between the Class A and B freshwater was the fecal coliform standard. Class A waters were not to exceed a geometric mean of 200/100ml, based on 5 consecutive samples during any 30 day period; nor were more than 10% of the total samples during any 30 day period to exceed 400/100ml. Class B waters were not to exceed a geometric mean of 1000/100ml, based on 5 consecutive samples during any 30 day period; nor were more than 20% of the total samples during any 30 day period to exceed 2000/100ml. As of April 1992, Class A and Class B waters were reclassified as Class FW, which protects for primary contact recreation.

Class FW, or "freshwaters", are freshwaters that are suitable for primary and secondary contact recreation and as a source for drinking water supply, after conventional treatment, in accordance with the requirements of the Department. These waters are suitable for fishing, and the survival and propagation of a balanced indigenous aquatic community of fauna and flora. This class is also suitable for industrial and agricultural uses.

Class SFH, or "shellfish harvesting" waters, are tidal saltwaters protected for shellfish harvesting, and are suitable also for uses listed in Classes SA and SB.

Class SA comprises "tidal saltwaters" suitable for primary and secondary contact recreation, crabbing and fishing. These waters are not protected for harvesting of clams, mussels, or oysters for market purposes or human consumption. The waters are suitable for the survival and propagation of a balanced indigenous aquatic community of marine fauna and flora.

Class SB are "tidal saltwaters" suitable for the same uses listed in SA. The difference between the Class SA and SB saltwater concerns the DO limitations. Class SA waters must maintain daily DO averages not less than 5.0 mg/l, with a minimum of 4.0 mg/l, and Class SB waters maintain DO levels not less than 4.0 mg/l.

Class GB, or "groundwaters", include all groundwaters of the State, unless classified otherwise, which meet the definition of underground sources of drinking water.

Site specific numeric standards (*) for surface waters may be established by the Department to replace the numeric standards found in Regulation 61-68 or to add new standards not contained in R.61-68. Establishment of such standards shall be subject to public participation and administrative procedures for adopting regulations. In addition, such site specific numeric standards shall not apply to tributary or downstream waters unless specifically described in the water classification listing in R.61-69.

The standards are used as instream water quality goals to maintain and improve water quality and also serve as the foundation of the Bureau of Water's program. They are used to determine permit limits for treated wastewater dischargers and any other activities that may impact water quality. Using mathematical Wasteload Allocation Models, the impact of a wastewater discharge on a receiving stream is predicted. For free flowing streams, 7Q10 is defined as the critical low flow. For highly regulated streams and tidal streams, other more appropriate critical flows may be determined. These predictions are then used to set limits for different pollutants on the National Pollutant Discharge Elimination System (NPDES) permits issued by the Department. The NPDES permit limits are set so that, as long as a permittee (wastewater discharger) meets the established permit limits, the discharge should not cause a standards violation in the receiving stream. All discharges to the waters of the State are required to have an NPDES permit and must abide by those limits, under penalty of law.

Classifications are based on desired uses, not on natural or existing water quality, and are a legal means to obtain the necessary treatment of discharged wastewater to protect designated uses. Actual water quality may not have a bearing on a waterbody's classification. A waterbody may be reclassified if desired or existing public uses justify the reclassification and the water quality necessary to protect these uses is attainable. A classification change is an amendment to a State regulation and requires public participation, SCDHEC Board approval, and General Assembly approval.

Natural conditions may prevent a waterbody from meeting the water quality goals as set forth in the standards. The fact that a waterbody does not meet the specified numeric standards for a particular classification does not mean the waterbody is polluted or of poor quality. Certain types of waterbodies (ie. swamps, lakes, tidal creeks) may naturally have water quality lower than the numeric standards. A waterbody can have water quality conditions below standards due to natural causes and still meet its use classification. A site specific numeric standard may be established by the Department after being subjected to public participation and administrative procedures for adopting regulations. Site specific numeric standards apply only to the stream segment described in the water classification listing, not to tributaries or downstream unspecified waters.

Water Quality Indicators

Water quality data are used to describe the condition of a waterbody, to help understand why that condition exists, and to provide some clues as to how it may be improved. Water quality indicators

include physical, chemical, and biological measurements. Copies of the Standard Operating Procedures used for these measurements are available from the Department's Bureau of Water and the Bureau of Environmental Services. The current State of S.C. Monitoring Strategy is available on our website at www.scdhec.net/eqc/admin/html/eqcpubs.html#wqreports and describes what parameters are sampled, where they are sampled, and how frequently.

MACROINVERTEBRATE COMMUNITY

Macroinvertebrates are aquatic insects and other aquatic invertebrates associated with the substrates of waterbodies (including, but not limited to, streams, rivers, tidal creeks, and estuaries). Macroinvertebrates can be useful indicators of water quality because these communities respond to integrated stresses over time that reflect fluctuating environmental conditions. Community responses to various pollutants (e.g. organic, toxic, and sediment) may be assessed through interpretation of diversity, known organism tolerances, and in some cases, relative abundances and feeding types.

FISH TISSUE

Many pollutants occur in such low concentrations in the water column that they are usually below analytical detection limits. Over time many of these chemicals may accumulate in fish tissue to levels that are easily measured. By analyzing fish tissue it is possible to see what pollutants may be present in waterbodies at very low levels. This information can also be used to determine if consumption of the fish poses any undue human health concerns and to calculate consumption rates that are safe.

DISSOLVED OXYGEN

Oxygen is essential for the survival and propagation of aquatic organisms. If the amount of oxygen dissolved in water falls below the minimum requirements for survival, aquatic organisms or their eggs and larvae may die. A severe example is a fish kill. Dissolved oxygen (DO) varies greatly due to natural phenomena, resulting in daily and seasonal cycles. Different forms of pollution also can cause declines in DO.

Changes in DO levels can result from temperature changes or the activity of plants and other organisms present in a waterbody. The natural diurnal (daily) cycle of DO concentration is well documented. Dissolved oxygen concentrations are generally lowest in the morning, climbing throughout the day due to photosynthesis and peaking near dusk, then steadily declining during the hours of darkness.

There is also a seasonal DO cycle in which concentrations are greater in the colder, winter months and lower in the warmer, summer months. Streamflow (in freshwater) is generally lower during the summer and fall, and greatly affects flushing, reaeration, and the extent of saltwater intrusion, all of which affect dissolved oxygen values.

BIOCHEMICAL OXYGEN DEMAND

Five-day biochemical oxygen demand (BOD_5) is a measure of the amount of dissolved oxygen consumed by the decomposition of carbonaceous and nitrogenous matter in water over a five-day period. The BOD_5 test indicates the amount of biologically oxidizable carbon and nitrogen that is present in

wastewater or in natural water. Matter containing carbon or nitrogen uses dissolved oxygen from the water as it decomposes, which can result in a dissolved oxygen decline. The quantity of BOD_5 discharged by point sources is limited through the National Pollutant Discharge Elimination System (NPDES) permits issued by the Department. The discharge of BOD_5 from a point source is restricted by the permits so as to maintain the applicable dissolved oxygen standard.

pH

pH is a measure of the hydrogen ion concentration of water, and is used to indicate degree of acidity. The pH scale ranges from 0 to 14 standard units (SU). A pH of 7 is considered neutral, with values less than 7 being acidic, and values greater than 7 being basic.

Low pH values are found in natural waters rich in dissolved organic matter, especially in Coastal Plain swamps and black water rivers. The tannic acid released from the decomposition of vegetation causes the tea coloration of the water and low pH.

High pH values in lakes during warmer months are associated with high phytoplankton (algae) densities. The relationship between phytoplankton and daily pH cycles is well established. Photosynthesis by phytoplankton consumes carbon dioxide during the day, which results in a rise in pH. In the dark, phytoplankton respiration releases carbon dioxide. In productive lakes, carbon dioxide decreases to very low levels, causing the pH to rise to 9-10 SU.

Fecal Coliform Bacteria

Fecal coliform bacteria are present in the digestive tract and feces of all warm-blooded animals, including humans, poultry, livestock, and wild animal species. Fecal coliform bacteria are themselves generally not harmful, but their presence indicates that surface waters may contain pathogenic microbes. Diseases that can be transmitted to humans through water contaminated by improperly treated human or animal waste are the primary concern. At present, it is difficult to distinguish between waters contaminated by animal waste and those contaminated by human waste.

Public health studies have established correlations between fecal coliform numbers in recreational and drinking waters and the risk of adverse health effects. Based on these relationships, the USEPA and SCDHEC have developed enforceable standards for surface waters to protect against adverse health effects from various recreational or drinking water uses. Proper waste disposal or sewage treatment prior to discharge to surface waters minimizes this type of pollution.

Nutrients

Oxygen demanding materials and plant nutrients are common substances discharged to the environment by man's activities, through wastewater facilities and by agricultural, residential, and stormwater runoff. The most important plant nutrients, in terms of water quality, are phosphorus and nitrogen. In general, increasing nutrient concentrations are undesirable due to the potential for accelerated growth of aquatic plants, including algae.

The forms of nitrogen routinely analyzed at SCDHEC stations are ammonia and ammonium nitrogen (NH_3/NH_4), total Kjeldahl nitrogen (TKN), and nitrite and nitrate nitrogen (NO_2/NO_3).

Ammonia and ammonium are readily used by plants. TKN is a measure of organic nitrogen and ammonia in a sample. Nitrate is the product of aerobic transformation of ammonia, and is the most common form used by aquatic plants. Nitrite is usually not present in significant amounts. Total nitrogen is the sum of TKN and NO_2/NO_3.

Total phosphorus (TP) is commonly measured to determine phosphorus concentrations in surface waters. TP includes all of the various forms of phosphorus (organic, inorganic, dissolved, and particulate) present in a sample.

CHLOROPHYLL *a*

Nuisance plant growth can create imbalances in the aquatic community, as well as aesthetic and access issues. Rooted aquatic vegetation can clog boat motors and create disagreeable conditions for swimming and water skiing. High densities of microscopic algae (phytoplankton) can cause wide fluctuations in pH and dissolved oxygen, and can cause undesirable shifts in the composition of aquatic life, or even fish kills. Chlorophyll *a* is a dominant photosynthetic pigment in plants and is used as an indicator of the density of phytoplankton in the water column. The process of cultural eutrophication, from increased plant nutrients, is particularly noticeable in lakes. Continuous flushing in streams prevents the development of significant phytoplankton populations and the resultant chemical changes in water quality.

TURBIDITY

Turbidity is an expression of the scattering and absorption of light through water. The presence of clay, silt, fine organic and inorganic matter, soluble colored organic compounds, and plankton and other microscopic organisms increases turbidity. Increasing turbidity can be an indication of increased runoff from land. It is an important consideration for drinking water as finished water has turbidity limits.

TOTAL SUSPENDED SOLIDS

Total Suspended Solids (TSS) are the suspended organic and inorganic particulate matter in water. Although increasing TSS can also be an indication of increased runoff from land, TSS differs from turbidity in that it is a measure of the mass of material in, rather than light transmittance through, a water sample. High TSS can adversely impact fish and fish food populations and damage invertebrate populations. There are no explicit State standards for TSS.

HEAVY METALS

Concentrations of cadmium, chromium, copper, lead, mercury, and nickel in water are routinely measured by the Department to compare to State standards intended to protect aquatic life and human health. These metals occur naturally in the environment, and many are essential trace elements for plants and animals. Human activities, such as land use changes and industrial and agricultural processes have resulted in an increased flux of metals from land to water. Atmospheric inputs are also recognized as important sources of metals to aquatic systems. Metals are released to the atmosphere from the burning of fossil fuels (coal, oil, gasoline), wastes (medical, industrial, municipal), and organic materials. The

metals are then deposited on land and in waterways from the atmosphere via rainfall and attached to particulates (dry deposition).

Assessment Methodology

The Watershed Water Quality Assessment is a geographically-based document that describes, at the watershed level, water quality as well as conditions and activities related to water quality. Significant revisions to South Carolina's Water Quality Standards were effective on June 22, 2001. USEPA approved these standards for use in implementing the Clean Water Act on November 28, 2001. This section provides an explanation of the information assessment methodology used to generate the watershed-level summaries. Water quality data summaries used in this assessment are presented in Appendices B and C.

USE SUPPORT DETERMINATION

Physical, chemical and biological data were evaluated, as described below, to determine if water quality met the water quality criteria established to protect the State classified uses defined in S.C. Regulation 61-68, *Water Classifications and Standards*. Some waters may exhibit characteristics outside the appropriate criteria due to natural conditions. Such natural conditions do not constitute a violation of the water quality criteria. To determine the appropriate classified uses and water quality criteria for specific waterbodies and locations, refer to S.C. Regulation 61-69, *Classified Waters*, in conjunction with S.C. Regulation 61-68.

At the majority of SCDHEC's surface water monitoring stations, samples for analysis are collected as surface grabs once per month, quarter, or year, depending on the parameter. Grab samples collected at a depth of 0.3 meters are considered to be a surface measurement. At most stations sampled by boat, dissolved oxygen and temperature are sampled as a water column profile, with measurements being made at a depth of 0.3 meters below the water surface and at one-meter intervals to the bottom or at 0.3 meters, mid-depth, and bottom. At stations sampled from bridges, these parameters are measured only at a depth of 0.3 meters. For the purpose of assessment, only surface samples are used in standards comparisons and trend assessments. Because of the inability to target individual high or low flow events on a statewide basis these data are considered to represent typical physical conditions and chemical concentrations in the waterbodies sampled. All water and sediment samples are collected and analyzed according to standard procedures (SCDHEC 1997, 2001).

Results from water quality samples can be compared to State and USEPA criteria, with some restrictions due to time of collection and sampling frequency. For certain parameters, the monthly sampling frequency employed in the ambient monitoring network is insufficient for strict interpretation of the standards. The USEPA does not define the sampling method or frequency other than indicating that it should be "representative". The grab sample method is considered to be representative for the purpose of indicating excursions relative to criteria, within certain considerations. A single grab sample is more representative of a one-hour average than a four-day average, more representative of a one-day average than a one-month average, and so on; thus, when inferences are drawn from grab samples relative to criteria, sampling frequency and the intent of the criteria must be weighed. When the sampling method or

frequency does not agree with the intent of the particular criterion, any conclusion about water quality should be considered as only an indication of conditions, not as a proven circumstance.

Macroinvertebrate community structure is analyzed routinely at selected stations as a means of detecting adverse biological impacts on the aquatic fauna of the state's waters due to water quality conditions, which may not be readily detectable in the water column chemistry.

This water quality assessment is based on the last complete five years of available quality assured physical, chemical, and biological data (1996 - 2000). Because of the data quality assurance and quality control process outcome, only total phosphorus data collected from 1996 through June 1998 were included in this assessment.

AQUATIC LIFE USE SUPPORT

One important goal of the Clean Water Act, the South Carolina Pollution Control Act, and the State Water Quality Classifications and Standards is to maintain the quality of surface waters to provide for the survival and propagation of a balanced indigenous aquatic community of fauna and flora. The degree to which aquatic life is protected (Aquatic Life Use Support) is assessed by comparing important water quality characteristics and the concentrations of potentially toxic pollutants with numeric criteria.

Support of aquatic life uses is determined based on the percentage of numeric criteria excursions and, where data are available, the composition and functional integrity of the biological community. The term excursion is used to describe a measured pollutant concentration that is outside of the acceptable range as defined by the appropriate criterion. Some waters may exhibit characteristics outside the appropriate criteria due to natural conditions. Such natural conditions do not constitute a violation of the water quality criteria. A number of waterbodies have been given waterbody-specific criteria for pH and dissolved oxygen, which reflect natural conditions. To determine the appropriate numeric criteria and classified uses for specific waterbodies and locations, please refer to S.C. Regulation 61-68, *Water Classifications and Standards* and S.C. Regulation 61-69, *Classified Waters*.

If the appropriate criterion for **dissolved oxygen and pH** are contravened in 10 percent or less of the samples, the criterion is said to be fully supported. If the percentage of criterion excursions is greater than 10 percent, but less than or equal to 25 percent, the criterion is partially supported, unless excursions are due to natural conditions. If there are more than 25 percent excursions, the criterion is not supported, unless excursions are due to natural conditions. The decision that criteria excursions are due to natural conditions is determined by consensus and/or the professional judgment of SCDHEC staff with specific local knowledge.

If the appropriate acute aquatic life criterion for **toxicants (heavy metals, priority pollutants, ammonia)** or any individual pollutant is exceeded more than once in five years, representing more than 10 percent of the samples collected, the criterion is not supported. If the acute aquatic life criterion is exceeded more than once, but in less than or equal to 10 percent of the samples, the criterion is partially supported. The USEPA criteria to protect aquatic life for most toxicants are specified as a four-day average and a one-hour average, and have been adopted as state criteria. Because samples are collected as grab samples, and because of sampling frequency, comparisons to chronic toxicity criteria (four-day average concentration) are considered inappropriate; therefore, only the acute criterion (one-hour average)

for the protection of aquatic life is used in the water quality assessment.

The total recoverable metals criteria for **heavy metals** are adjusted to account for solids partitioning following the approach set forth in the Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria, October 1, 1993, by Martha G. Prothro, Acting Assistant Administrator for Water, available from the Water Resource center, USEPA, 401 M St., SW, mail code RC4100, Washington, DC 20460; and 40CFR131.36(b)(1). Under this approach, a default TSS value of 1 mg/L is used. Where the metals criteria are hardness based, a default value of 25 mg/L is used for waters where hardness is 25 mg/l or less.

If the appropriate criterion for **turbidity** in all waters, and for waters with **numeric total phosphorus, total nitrogen, and chlorophyll-a** criteria is exceeded in more than 25 percent of the samples, the criterion is not supported. If the criterion is exceeded in 25 percent of the samples or less, then the criterion is fully supported.

If the conclusion for any single parameter is that the criterion is "not supported", then it is concluded that aquatic life uses are not supported for that waterbody, at that monitoring location. If there are no criteria that are "not supported", but the conclusion for at least one parameter criterion is "partially supported", then the conclusion is aquatic life uses are partially supported. Regardless of the number of samples, no monitoring site will be listed as partially or not supporting for any pollutant based a single sample result because of the possibility of an anomalous event.

The goal of the standards for aquatic life uses is the protection of a balanced indigenous aquatic community; therefore, biological data is the ultimate deciding factor, regardless of chemical conditions. If biological data shows a healthy, balanced community, the use is considered supported even if chemical parameters do not meet the applicable criteria.

MACROINVERTEBRATE DATA INTERPRETATION

Macroinvertebrate community assessment data are used to directly determine Aquatic Life Use Support and to support determinations based on water chemistry data. Macroinvertebrate community data may also be used to evaluate potential impacts from the presence of sediment contaminants. Aquatic and semi-aquatic macroinvertebrates are identified to the lowest practical taxonomic level depending on the condition and maturity of specimens collected. The EPT Index and the North Carolina Biotic Index are the main indices used in analyzing macroinvertebrate data. To a lesser extent, taxa richness and total abundance may be used to help interpret data.

The EPT Index or the Ephemeroptera (mayflies) - Plecoptera (stoneflies) - Trichoptera (caddisflies) Index is the total taxa richness of these three generally pollution-sensitive orders. EPT values are compared with least impacted regional sites. The Biotic Index for a sample is the average pollution tolerance of all organisms collected, based on assigned taxonomic tolerance values. A database is currently being developed to establish significant EPT index levels to be used in conjunction with the Biotic Index to address aquatic life use support.

Taxa richness is the number of distinct taxa collected and is the simplest measure of diversity. High taxa richness is generally associated with high water quality. Increasing levels of pollution

progressively eliminate the more sensitive taxa, resulting in lower taxa richness. Total abundance is the enumeration of all macroinvertebrates collected at a sampling location. When gross differences in abundance occur between stations, this metric may be considered as a potential indicator.

RECREATIONAL USE SUPPORT

Recreational use support is defined as the degree to which the swimmable goal of the Clean Water Act is attained and is based on the frequency of fecal coliform bacteria excursions. A fecal coliform excursion is defined as an occurrence of a bacteria concentration greater than 400/100 ml for all surface water classes. Comparisons to the bacteria geometric mean standard are not considered appropriate based on sampling frequency and the intent of the standard. If 10 percent or less of the samples are greater than 400/100 ml, then recreational uses are said to be fully supported. If the percentage of standards excursions is between 11-25 percent, then recreational uses are said to be partially supported, and if the percentage of excursions is greater than 25 percent, it is considered to represent nonsupport of recreational uses.

FISH CONSUMPTION USE SUPPORT

The Department uses a risk-based approach to evaluate fish tissue data and to issue consumption advisories in affected waterbodies. This approach contrasts the average daily exposure dose to the reference dose (RfD). Using these relationships, fish tissue data are interpreted by determining the consumption rates that would not be likely to pose a health threat to adult males and nonpregnant adult females. Because an acceptable RfD for developmental neurotoxicity has not been developed, pregnant women, infants, and children are advised to avoid consumption of fish from any waterbody where a mercury advisory was issued.

Fish consumption use support is determined by the occurrence of advisories or bans on consumption for a waterbody. For the support of fish consumption uses, a fish consumption advisory indicates partial use support, a consumption ban indicates nonsupport of uses.

DRINKING WATER USE SUPPORT

Nonattainment of drinking water use is indicated if the median concentration of the ambient surface water data for any pollutant exceeds the appropriate drinking water Maximum Contaminant Level (MCL), based on a minimum of three samples. Where MCLs do not exist, SCDHEC may use or develop other criteria such that pollutant concentrations or amounts do not interfere with drinking water use, actual or intended, as determined by SCDHEC.

Additional Screening and Prioritization Tools

Evaluation of water quality data and other supplemental information facilitates watershed planning. Information from the following sources is used to develop watershed-based protection and prevention strategies.

LONG-TERM TREND ASSESSMENT

As part of the watershed water quality assessments, surface data from each station are analyzed for statistically significant long-term trends using the Seasonal Kendall Test Without Correction (SKWOC) for significant serial correlation, using procedures in the WQHYDRO computer package developed by Eric Aroner of WQHYDRO Consulting. Flows are not available for most stations, and the parametric concentrations are not flow-corrected. Seasonal Kendall's tau analysis is used to test for the presence of a statistically significant trend of a parameter, either increasing or decreasing, over a fifteen-year period. It indicates whether the concentration of a given parameter is exhibiting consistent change in one direction over the specified time period. A two sided test at $p=0.1$ is used to determine statistically significant trends, and the direction of trend. An estimate of the magnitude of any statistically significant trend is calculated.

A rigorous evaluation for trends in time-series data usually includes a test for autocorrelation. The data are not tested for autocorrelation prior to the trend analysis. It is felt that autocorrelation would not seriously compromise a general characterization of water quality trends based on such a long series of deseasonalized monthly samples.

One of the advantages of the seasonal Kendall test is that values reported as being below detection limits (DL) are valid data points in this nonparametric procedure, since they are all considered to be tied at the DL value. When the DL changed during the period of interest, all values are considered to be tied at the highest DL occurring during that period. Since it is possible to measure concentrations equal to the value of the DL, values less than DL are reduced by subtraction of a constant so that they remain tied with each other, but are less than the values equal to the DL. Since fecal coliform bacteria detection limits vary with sample dilution, there is no set DL; therefore, for values reported as less than some number, the value of the number is used.

For the purposes of this assessment, long-term trends in selected parameters were examined using data collected from 1986 through 2000. In 1992, a phosphate detergent ban was instituted in South Carolina; therefore, for total phosphorus, a second trend assessment is included for the available data from 1992 through 2000. For total phosphorus, it is this second time period that is reported in the text.

SEDIMENT SCREENING

There are no sediment standards; therefore, in order to identify sediments with elevated metals concentrations, percentiles are constructed using five years of statewide sediment data. Only values greater than the detection limit were used for chromium, copper, nickel, lead, and zinc. Because so few concentrations of cadmium and mercury are measured above the detection limit, all samples were pooled for these metals. A sediment metal concentration is considered to be high if it is in the top 10% of the pooled results, and very high if it is in the top 5%. Any analytical result above detection limits is flagged for pesticides, PCBs, and other priority pollutants. Sites with noted high metals concentrations or the occurrence of other contaminants above detection limits are prioritized for the collection of biological data, or additional monitoring and investigation, to verify the true situation.

For saltwater sediments, national studies have been conducted by the National Oceanic and Atmospheric Administration (NOAA) and the State of Florida that have developed Sediment Quality Guidelines (SQGs) for the United States and the southeastern region. These SQGs summarize all

published toxicology and biomonitoring studies for a given contaminant and ranked them from lowest to highest concentration where an adverse effect was observed. The tenth percentile of the ranked data, from all published studies that reported an adverse effect, is termed the Effects Range Low (ERL) or Threshold Effects Level (TEL) and represents the threshold concentration for toxicity to occur. The median concentration where adverse effects in benthos are observed (the fiftieth percentile) is termed the Effects Range Median (ERM) or Probable Effects Levels (PEL). Measured sediment contaminant levels may be compared with ERLs/ERMs or TELs/PELs to predict potential probability for sediment bound contaminants to cause toxicity in benthic faunal communities. Saltwater sediment contaminant levels were compared with existing sediment quality guidelines by both individual compound. Sites with sediments which had individual chemical contaminant concentrations which exceeded ERL/TEL and ERM/PEL guideline levels are identified to indicate that trace metal, pesticide, PAH or PCB concentrations exceeded levels potentially toxic to estuarine organisms.

Groundwater Quality

The state of South Carolina depends upon its groundwater resources to supply an estimated 40 percent of its residents. To monitor the ambient quality of this valuable resource, a network of existing public and private water supply wells has been established that provides groundwater quality data representing all of the State's major aquifers. A great deal of monitoring is also being carried out at regulated sites with known or potential groundwater contamination (see SCDHEC's South Carolina Groundwater Contamination Inventory).

The ambient monitoring network has been designed to avoid wells in areas of known or potential contamination in order to analyze natural aquifer conditions. Information collected can then be used to identify variations in water chemistry among the major aquifers of South Carolina and give a general understanding of the groundwater conditions throughout the state at varying depths.

Wells sampled in the Salkehatchie River Basin were drilled into one of four major aquifers. The most prominent aquifer, providing over 80% of the groundwater in this area, is the Tertiary Limestone Aquifer or the Floridan Aquifer. The other three aquifers utilized are the Middendorf, Black Creek, and Surficial Sands. All well samples met state standards for Class GB groundwater (see section on Classified Waters, Standards, and Natural Conditions). The ambient monitoring well sites are indicated in the appropriate watershed evaluations and depicted on the watershed maps.

Floridan Aquifer

The Floridan aquifer is the primary source of groundwater for most of the lower portion of the basin. It is composed of solid limestone and is capable of yielding great quantities of water. Wells drilled in this aquifer are similar to those drilled in bedrock in that they do not use screens, but utilize open holes with a solid case up to the surface.

Water from the Floridan Aquifer is easily distinguished from all other aquifers in the state by its high concentration of calcium and its alkaline pH, ranging from 7.4 to 9.0. The hardness of this aquifer's groundwater can approach 2000 mg/l. While many aquifers tend to be low in necessary fluoride, levels in

the Floridan often fall within the optimum range of 0.8 to 1.2 mg/l.

Middendorf Aquifer

The Middendorf Aquifer directly overlies the Bedrock Aquifer and stretches from the Fall Line, where it outcrops, to the Atlantic coast, where it exceeds depths of 3000 feet. The Middendorf Aquifer is the main provider of groundwater to numerous private and public wells in the upper portion of the Salkehatchie River Basin. It is generally composed of fairly coarse sands and therefore is capable of yielding considerable amounts of water.

The sands that make up the Middendorf Aquifer are typically clean, containing relatively few heavy minerals or organics. The water is generally leached of most minerals and approaches the chemistry of distilled water. There is a tendency for the water to be soft, acidic, and low in dissolved solids, with locally high iron content. This tendency changes toward the coast due to minute amounts of minerals that slowly dissolve in the water as it ages. As it reaches the coastal areas, the concentration is high enough to affect the water quality; however, the Middendorf Aquifer now lies beneath waters of similar quality and more easily reached aquifers.

Black Creek Aquifer

The Black Creek Aquifer is an important source of water in the central Coastal Plain region of South Carolina; however, only one well in the network utilizes this aquifer in the Salkehatchie River Basin. Due to this lack of data points, the summary will be more applicable to this particular part of the Black Creek Aquifer and may not necessarily apply to the aquifer as a whole. Generally the Black Creek Aquifer consists of sands interbedded with clays and many excess minerals can be present, increasing the chance of dissolved solids and elevated levels of minerals such as fluoride, or iron and other metals. In the study area, the sands are generally clean and conditions are similar to those in the deeper Middendorf Aquifer. Water sampled was soft and acidic with a pH of 6.5, and was relatively low in dissolved solids. As the water migrates towards the coast, there is a trend towards increasing pH and dissolved solids.

Surficial Sands Aquifer

The Surficial Sands Aquifer is a shallow, coastal aquifer that is utilized mainly by relatively shallow private wells. As its name implies, the aquifer consists mainly of sands and is the water table aquifer in most of its extent. Due to its close proximity to both the surface and the ocean, the water is predictably high in dissolved solids, has a widely varied pH ranging from 6.2 to 8.6, and has elevated levels of sodium and chlorine. Amounts of dissolved solids are also widely varied, ranging from 80 to 2400 mg/l. Water pumped from this aquifer typically has an obvious odor and distinct taste, but is still within standards for drinking water. Despite the higher levels of dissolved solids, this aquifer is frequently used because of its proximity to the surface and its decent yields.

NPDES Program

The Water Facilities Permitting Division and the Industrial, Agricultural, and Stormwater Permitting Division are responsible for drafting and issuing National Pollutant Discharge Elimination System (NPDES) permits. Facilities are defined as either "major" or "minor". For municipal permits, a facility is considered a "major" if it has a permitted flow of 1 MGD or more and is not a private facility. The determination for industrial facilities is based on facility and stream characteristics, including toxicity, amount of flow, load of oxygen, proximity of drinking water source, potential to exceed stream standards, and potential effect on coastal waters.

Permitting Process

A completed draft permit is sent to the permittee, the SCDHEC District office, and if it is a major permit, to the USEPA for review. A public notice is issued when the permit draft is finalized. Comments from the public are considered and, if justified, a public hearing is arranged. Both oral and written comments are collected at the hearing, and after considering all information, the Department staff makes the decision whether to issue the permit as drafted, issue a modified permit, or to deny the permit. Everyone who participated in the process receives a notice of the final decision. A copy of the final permit will be sent to anyone who requests it. Staff decisions may be appealed according to the procedures in R.61-72 and the rule of the Administrative Law Judge Division of South Carolina.

The permitting Divisions use general permits with statewide coverage for certain categories of discharges. Discharges covered under general permits include utility water, potable surface water treatment plants, potable groundwater treatment plants with iron removal, petroleum contaminated groundwater, mine dewatering activities, aquaculture facilities, bulk oil and gas terminals, hydrostatic test waters (oil & gas lines), and vehicle wash waters. Additional activities proposed for general permits include ready-mix concrete/concrete products and concentrated animal feeding operations. State Land application systems for land disposal and lagoons are also permitted.

Wasteload Allocation Process

A wasteload allocation (WLA) is the portion of a stream's assimilative capacity for a particular pollutant that is allocated to an existing or proposed point source discharge. Existing WLAs are updated during the basin review process and included in permits during the normal permit expiration and reissuance process. New WLAs are developed for proposed projects seeking a discharge permit or for existing discharges proposing to increase their effluent loading at the time of application. Wasteload allocations for oxygen demanding parameters and nutrients are developed by the Water Quality Modeling Section, and WLAs for toxic pollutants and metals are developed by the appropriate permitting division.

The ability of a stream to assimilate a particular pollutant is directly related to its physical and chemical characteristics. Various techniques are used to estimate this capacity. Simple mass balance/dilution calculations may be used for a particular conservative (nondecaying) pollutant while complex models may be used to determine the fate of nonconservative pollutants that degrade in the environment. Waste characteristics, available dilution, and the number of discharges in an area may, along with existing water quality, dictate the use of a simple or complex method of analysis. Projects that

generally do not require complex modeling include: groundwater remediation, noncontact cooling water, mine dewatering, air washers, and filter backwash.

Streams are designated either effluent limited or water quality limited based on the level of treatment required of the dischargers to that particular portion of the stream. In cases where the USEPA published effluent guidelines and the minimum treatment levels required by law are sufficient to maintain instream water quality standards, the stream is said to be effluent limited. Streams lacking the assimilative capacity for a discharge at minimum treatment levels are said to be water quality limited. In cases where better than technology limits are required, water quality, not minimum requirements, controls the permit limits. The Department's Water Quality Modeling Section recommends limits for numerous parameters including ammonia nitrogen (NH3-N), dissolved oxygen (DO), total residual chlorine (TRC), and five-day biochemical oxygen demand (BOD5). Limits for other parameters, including metals, toxics, and nutrients are developed by the Water Facilities Permitting Division or the Industrial, Agricultural, and Stormwater Permitting Division in conjunction with support groups within the Department.

Nonpoint Source Management Program

Nonpoint source (NPS) water pollution, sometimes called “runoff pollution” or “polluted runoff” does not result from a discharge at a specific, single location (or point), but generally comes from diffuse, numerous sources. Runoff occurring after a rain event may transport sediment from plowed fields, construction sites, or logging operations, pesticides and fertilizers from farms and lawns, motor oil and grease deposited on roads and parking lots, or bacteria containing waste from agricultural animal facilities or malfunctioning septic systems. The rain moves the pollutants across the land to the nearest waterbody or storm drain where they may impact the water quality in creeks, rivers, lakes, estuaries, and wetlands. NPS pollution may also impact groundwater when it is allowed to seep or percolate into aquifers. Adverse effects of NPS pollution include physical destruction of aquatic habitat, fish kills, interference with or elimination of recreational uses of a waterbody (particularly lakes), closure of shellfish beds, reduced water supply or taste and odor problems in drinking water, and increased potential for flooding because waterbodies become choked with sediment.

Congress recognized the growing problem of nonpoint source pollution in the late 1980s, and added NPS provisions to the federal law. Section 319 of the 1987 Amendments to the Clean Water Act required states to assess the nonpoint source water pollution associated with surface and groundwater within their borders and then develop and implement a management strategy to control and abate the pollution. The first Assessment of Nonpoint Source Pollution in South Carolina accomplished this purpose. The Department’s Bureau of Water manages the ongoing State NPS Management Program, which develops strategies and targets waterbodies for priority implementation of management projects. Section 319 funds various voluntary efforts, including watershed projects, which address many aspects of the pollution prevention management measure and provide education, outreach and technical assistance to various groups and agencies. Most of the projects are implemented by cooperating agencies.

Many land activities can individually or cumulatively contribute to NPS pollution. Eight categories of NPS pollution sources have been identified as contributing to water quality degradation in South Carolina: agriculture, forestry, urban areas, marinas and recreational boating, mining, hydrologic modification, wetlands and riparian areas disturbance, land disposal, and groundwater contamination. There are programs, both regulatory and voluntary, in-place that address all eight categories.

Agriculture

In South Carolina, pesticides, fertilizers, animal waste, and sediment are potential sources of agricultural NPS pollution. Agricultural activities also have the potential to directly impact the habitat of aquatic species through physical disturbances caused by livestock or equipment, and through the management of water. The State has laws and regulations that prevent NPS pollution from several agricultural sources including pesticides and animal waste. Funding programs including those under §319 grants from EPA, cost share funds from USDA under EQIP and CRP are used to implement best management practices that are not covered under regulations. Agriculture land acreage is quantified in the basin-wide and individual watershed evaluations.

Silviculture

Forests comprise a major portion of South Carolina's land base. Sixty-six percent, or 12.6 million acres, of the State's total land area is in timberland. Silvicultural practices associated with road access, harvest, and regeneration of timber present the most significant potential for NPS pollution. Silvicultural activities have the potential to degrade the State's waters through the addition of sediment, nutrients, organics, elevated temperature, and pesticides. Erosion and subsequent sedimentation are the most significant and widespread NPS problems associated with forestry practices. Sudden removal of large quantities of vegetation through harvesting or silvicultural practices can also increase leaching of nutrients from the soil system into surface waters and groundwaters. Programs to abate or control NPS pollution from forestry activities are primarily the responsibility of the S.C. Forestry Commission (SCFC) and the United States Department of Agriculture's Forest Service (USFS), with other agencies having supplementary programs. S.C. Forestry Commission provides monthly courtesy exams to SCDHEC's Division of Water Quality and to forest industries. If water quality was impacted by a forestry operation, SCDHEC may institute enforcement action under the South Carolina Pollution Control Act. The United States Department of Agriculture's Natural Resources Conservation Service (USDA-NRCS) also provides technical assistance to government, landowners, and land users. Forest land acreage is quantified in the basin-wide and individual watershed evaluations.

Urban Areas

Urbanization has been linked to the degradation of urban waterways. The major pollutants found in runoff from urban areas include sediment, nutrients, oxygen-demanding substances, heavy metals, petroleum hydrocarbons, pathogenic bacteria, and viruses. Suspended sediments constitute the largest mass of pollutant loadings to receiving waters from urban areas. Construction sites are a major source of sediment erosion. Nutrient and bacterial sources of contamination include fertilizer usage, pet wastes,

leaves, grass clippings, and faulty septic tanks. Petroleum hydrocarbons result mostly from automobile sources. In the 1980's, the average statewide population growth was 11.7 percent, while the coastal counties had an increase of 22 percent, nearly double the State rate during the same time period. This continuing development and population growth has the potential to make urban runoff the most significant source of pollution in waters of the State in the future. Urban land acreage is quantified in the basin-wide and individual watershed evaluations.

SCDHEC has a number of statewide programs that address components of urban NPS pollution. The Bureau of Water administers four permitting programs that control runoff from new and existing urban sources. These include the Stormwater and Sediment Reduction program, Municipal Separate Storm Sewer System (MS4), Industrial NPDES Stormwater Permits, and the §401 water quality certification program (see p.26). Additional controls for urban runoff in the coastal zone are implemented by SCDHEC's Oceans and Coastal Resources Management (OCRM) through the State Coastal Zone Management Plan.

SCDHEC's Bureau of Environmental Health's Division of Onsite Wastewater Management administers the Onsite Sewage Disposal System program for the entire State, and oversees the permitting for the installation and management of septic systems. Although not associated with urban land use, this Division permits the septic systems of camping facilities if the facility is not on public sewer. The camp sewage is discharged into a public collection, treatment and disposal system if available, or an onsite wastewater treatment and disposal system (septic tank) is used.

Marinas and Recreational Boating

Potential adverse environmental impacts associated with marinas include dissolved oxygen deficiencies, high concentrations of toxic metals in aquatic organisms, and the potential to cause bacterial contamination of shellfish harvesting areas. In addition, marina construction activities can lead to the physical destruction of sensitive ecosystems and bottom-dwelling aquatic communities. Presently, there are more than 100 marinas in South Carolina, with 68 of them in the coastal zone. The U.S. Army Corps of Engineers and the SCDHEC are responsible for permitting marinas in South Carolina. Within SCDHEC, the two offices that have marina permitting authority are the Office of Ocean and Coastal Resource Management (SCDHEC OCRM) and the Office of Environmental Quality Control (SCDHEC Bureau of Water). SCDHEC OCRM issues critical area permits for marinas within the critical area of the coastal zone. SCDHEC Bureau of Water issues permits for marinas at all other locations within the State and issues §401 Water Quality Certifications (see p.26) for marinas statewide. The U.S. Coast Guard and the SCDNR are responsible for managing recreational boating activity.

Mining

South Carolina's mineral production consists of non-fuel minerals that provide raw materials for construction products and a precious metal industry. Portland cement clays (kaolin and brick), sand and gravel, and crushed stone represent the majority of the total mineral value. At the end of FY 2001-2002, there were 540 mining operations in South Carolina affecting more than 23,000 acres. Surface mining has the potential to generate NPS pollution during mineral exploration, mine development extraction, transportation, mining and processing, product storage, waste disposal, or reclamation. Potential nonpoint

source impacts related to mining activities generally include hydrologic modification, erosion and sedimentation, water quality deterioration, fish and wildlife disturbances, and public nuisances.

The Department's Bureau of Land and Waste Management has primary regulatory responsibility for mining activities. Within the Bureau, the Division of Mining and Solid Waste Permitting is responsible for administering and implementing the S.C. Mining Act and its associated regulations. The Mining Act serves as part of an overall management plan for NPS pollution from active mines. Mining activities and locations are identified in the appropriate watershed evaluations.

Hydromodification

Hydrologic modification (or hydromodification) is defined as stream channelization, channel modification, and dam construction. These activities can negatively impact water quality, destroy or modify in-stream habitat and increase streambank and shoreline erosion. Two State permits, implemented by the SCDHEC, are involved in the implementation of management measures for hydromodification. A critical area permit is required for coastal waters, saltwater wetlands, and beaches defined as critical areas. A navigable waters permit is required for the remainder of the State. Implementation of State policy for dam construction is similar to control of other hydromodification projects in South Carolina, requiring the same State permits and certifications. In addition, dams require a State dam safety permit or a State stormwater management and sediment reduction permit. The Department must also issue Water Quality Certifications pursuant to §401 of the Federal Clean Water Act for dam construction and hydropower operations licensed by the Federal Energy Regulatory Commission.

Wetlands

Twenty-three percent of South Carolina is covered by 4.5 million acres of wetlands. The U.S. Army Corps of Engineers implements the federal program for regulating development in wetlands with guidelines established by EPA. The Corps delineates wetlands and determines which wetlands fall under regulatory jurisdiction and require a federal permit for development. The Wetlands Reserve Program, administered by the NRCS, is designed to restore and protect wetlands. At the state level, the primary focus of wetland regulation is the §401 Water Quality Certification. In the §401 certification process, applications for wetland alterations may be denied or modified due to the special nature of a wetland or the functions that a wetland provides. Wetland impacts must be compensated through restoration, enhancement, preservation, or creation and protected in perpetuity. Future development would be prohibited in these mitigated and legally protected areas. Knowledge of areas that are restricted from development due to mitigation or special water classification is useful in planning future development in a watershed. Wetland acreage is quantified in the basin-wide and individual watershed evaluations.

Land Disposal

Although modern solid waste disposal sites are considered point sources of pollution and regulated, leachate from sanitary landfills and dumps have the potential to pollute large portions of adjacent groundwater aquifers. Toxic compounds are commonly a part of the overall composition of landfill leachate, especially when the landfill has been used for the disposal of toxic chemicals. There are currently 140 permitted landfills in South Carolina. This total represents 35 municipal solid waste

landfills (MSWLF), 62 industrial waste landfills, 41 construction and demolition (C&D) landfills, one sludge monofill, and one ash monofill. Regulatory authority over solid waste disposal activities resides with SCDHEC's Bureau of Land and Waste Management. All active and closed industrial and municipal solid waste landfills are identified in the appropriate watershed evaluations.

Land application of wastewater or its by products is a form of recycling because it allows recovery of elements needed for crop production. Land application of biosolids may be beneficial and environmentally sound when applied at the correct agronomic rate. Land applying biosolids can benefit farmers by offsetting the costs of fertilizer and lime while reducing the pressure on existing landfills. SCDHEC's Bureau of Water, Division of Water Monitoring, Assessment and Protection, Groundwater Quality Section conducts a program to prevent, monitor, and correct groundwater contamination from nonpoint source pollution from land application of wastewater biosolids, solids, animal manures, biosolids, and sewage sludge. Land application, which is not a discharge, requires a "no discharge" permit (ND). All active industrial and municipal land applications are identified in the appropriate watershed evaluations.

Groundwater Contamination

All aquifers in the State are potential Underground Sources of Drinking Water and are protected under the S.C. Water Classifications and Standards. Groundwaters are thus protected in a manner consistent with the SCDHEC groundwater protection strategy. Staff hydrogeologists implement a screening program for nonpoint source impacts from pits, ponds, and lagoons associated with the permitted storage, treatment, and disposal of industrial and municipal wastewaters. In cases where a groundwater impact has been identified in violation of S.C. Water Classifications and Standards, appropriate actions will be coordinated with the facility owner to ensure regulatory compliance. The hydrogeologist coordinates with the facility owner to implement source identification, contaminant extent assessments, initiation of contaminant remediation systems, and performance evaluations of corrective actions. In addition to releases from wastewater treatment systems, the staff evaluates releases from other nonpoint sources such as above ground tanks, nonregulated fuel oil tanks, spills and/or leaks. Sites with confirmed groundwater impact will be placed under a Consent Agreement or an Order. SCDHEC's South Carolina Groundwater Contamination Inventory quantifies the status of groundwater quality in South Carolina. The sites in the inventory are known groundwater contamination cases in the State, and are referenced by name and county, and updated annually.

Water Quantity

Water treatment facilities are permitted by the Department for municipal and industrial potable water production. As per the 2000 Groundwater Use and Reporting Act and 2000 South Carolina Surface Water Withdrawal and Reporting Act, all water uses over 3 million gallons in any month must report their annual usage by month. This includes activities such as industrial, agricultural, mining, golf courses, public supply, hydropower, thermo power, and nuclear power. The volume of surface water removed from a stream is identified in the watershed evaluations for municipal (potable) uses.

Interbasin Transfer of Water

According to The State Interbasin Transfer of Water Act, an interbasin transfer of water permit is required when any entity desires to withdraw, divert, pump, or cause directly the transfer of either 5% of the 7Q10 (seven day, ten year low flow), or one million gallons or more of water a day on any day, whichever is less, from one river basin and use or discharge all or any part of the water in a different river basin. The SCDHEC Board is empowered to negotiate agreements, accords, or compacts on behalf of and in the name of the State of South Carolina with other states or the United States, or both, with any agency, department, or commission of either, or both, relating to transfers of water that impact waters of this State, or are connected to or flowing into those waters. The Board is further empowered to represent this State in connection with water withdrawals, diversions, or transfers occurring in other states, which may affect this State.

Capacity Use Program

As authorized under the Groundwater Use and Reporting Act, the Department may declare a capacity use area if the resource is threatened by increasing demand or the potential problems of saltwater intrusion. The Capacity Use Program requires large groundwater users to obtain a permit in capacity use areas. Permits are required for groundwater withdrawn in excess of 3 million gallons in a month. Permit owners are required to report the amount of groundwater withdrawn per month on an annual basis. As part of the Capacity Use Program, the Department monitors a large number of wells to determine the relationship between water levels and pumpage in order to determine regional impacts and evaluate reserve supply. A reserve supply is maintained to offset drought conditions. Beaufort, Jasper, and Colleton Counties make up the Low Country Capacity Use Area in the Salkehatchie River Basin.

Growth Potential and Planning

Land use and management can define the impacts to water quality in relation to point and nonpoint sources. Assessing the potential for an area to expand and grow allows for water quality planning to occur and, if appropriate, increased monitoring for potential impairment of water quality. Indicators used to predict growth potential include water and sewer service, road and highway accessibility, and population trends. These indicators and others were used as tools to determine areas within the Salkehatchie River Basin having the greatest potential for impacts to water quality as a result of development.

SCDHEC's Strategic Plan for 2000-2005 (www.scdhec.net/news/releases/pdf files/Stratpln.pdf) acknowledges that growth issues are best handled at the local government level. SCDHEC's role is to work with local governments and communities to help them understand the importance of planning for smart growth: buffers, greenspaces, mass transit, subdivision and roadway planning, bike paths and bike lanes, and park and ride lots. SCDHEC can also provide assistance in helping local entities access information and provide consultation on technical issues such as the establishment of buffers and watershed stormwater planning. Many counties in the Salkehatchie River Basin lack county wide zoning ordinances; therefore, there is little local regulatory power to influence the direction or magnitude of regional growth. The majority of municipalities have zoning ordinances in place; however, much of the

growth takes place just outside the municipal boundaries, where infrastructure is inadequate. Section 208 of the Clean Water Act serves to encourage and facilitate the development and implementation of areawide waste treatment management plans. The §208 Areawide Water Quality Management Plans were completed in great detail during the 1970's and have recently been updated. Information from the updated reports is used in the individual watershed evaluations. South Carolina's water quality management plans support consolidation of wastewater treatment facilities into larger regional systems.

Watershed boundaries extend along topographic ridges and drain surrounding surface waters. Roads are commonly built along ridge tops with the best drainage conditions. Cities often develop in proximity to ridges as a result of their plateau terrain. It is not uncommon, then, to find cities or road corridors located along watershed boundaries, and thus influencing or impacting several watersheds.

Watershed Protection and Restoration Strategies

SCDHEC's Bureau of Water is responsible for ensuring that South Carolina's water is safe for drinking and recreation, and suitable to support aquatic life. This section provides an overview of other important Bureau programs and strategies applied statewide to protect and restore water quality. The point and nonpoint source controls described previously assist with achieving these goals.

Under §303(d) of the Federal Clean Water Act, each state is required to provide a comprehensive inventory of impaired waters for which existing required pollution controls are not stringent enough to achieve State water quality standards or Federal Clean Water Act goals. This biennial list, commonly referred to as the "303(d) list", is the basis for targeting waterbodies for watershed-based solutions. A copy of the current §303(d) list can be obtained by contacting the Bureau of Water. Several Bureau programs address these impaired streams in an effort to restore them.

Total Maximum Daily Load

A Total Maximum Daily Load (TMDL) is the calculated maximum allowable pollutant loading to a waterbody at which water quality standards are maintained. A TMDL is made up of two main components, a load allocation and a wasteload allocation. A load allocation is the portion of the receiving water's loading capacity attributed to existing or future nonpoint sources or to natural background sources. The waste load allocation is the portion of a receiving water's loading capacity allocated to an existing or future point source.

A TMDL is a means for recommending controls needed to meet water quality standards in a particular water or watershed. Historically, the typical TMDL has been developed as a wasteload allocation, considering a particular waterbody segment, for a particular point source, to support setting effluent limitations. In order to address the combined cumulative impacts of all sources, broad watershed-based TMDLs are now being developed.

The TMDL process is linked to all other State water quality activities. Water quality impairments are identified through monitoring and assessment. Watershed-based investigations result in source identification and TMDL development. TMDLs form links between water quality standards and point and nonpoint source controls. Where TMDLs are established, they constitute the basis for NPDES permits and for strategies to reduce nonpoint source pollution. The effectiveness and adequacy of applied controls are evaluated through continued monitoring and assessment.

Funding for TMDL implementation is currently available with USEPA’s §319 of the Clean Water Act grants. For more information, see the Bureau of Water web page www.scdhec.net/water or call the Watershed Program at (803) 898-4300.

Antidegradation Implementation

The State's Antidegradation Policy as part of S.C. Regulation 61-68 is represented by a three-tiered approach to maintaining and protecting various levels of water quality and uses; streams included on the §303(d) list are addressed under Tier 1. Tier 1 antidegradation policies apply to all waters of the

State and require that existing uses and the minimum level of water quality for those uses be maintained and protected. Tier 2 policies apply to high quality water where the water quality exceeds the mandatory minimum levels to support the Clean Water Act's goals of propagation of fish, shellfish, wildlife, and recreation in and on the water. The Department considers all the waters of the State as high quality waters. Tier 3 policies apply to the maintenance of water quality in waters that constitute an Outstanding National Resource Water and do not allow for any permanent permitted dischargers. Outstanding Resource Waters of the State are provided a higher level of protection than Tier 2, but do not meet the requirements of Tier 3.

Tier 1 protection will be implemented when applying numeric standards included in Regulation 61-68 for human health, aquatic life, and organoleptic protection as follows: if a waterbody has been affected by a parameter of concern causing it to be on the §303(d) list, then the Department will not allow a permitted net increase of loading for the parameter of concern unless the concentration will not contribute to a violation of water quality standards. This no net increase will be achieved by reallocation of existing total load(s) or by meeting applicable water quality standard(s) at the end-of-pipe. No discharge will be allowed to cause or contribute to further degradation of a §303(d) listed waterbody.

The Antidegradation Rules apply to both nonpoint source pollution and for point sources into impaired waters. Many activities contributing to nonpoint source pollution are controlled with voluntary measures. The Department implements permitting or certification programs for some of these activities and has the opportunity to ensure compliance with the Antidegradation Rules. The activities of primary concern are land development projects which are immediately adjacent to and discharge runoff or stormwater into impaired waters.

401 Water Quality Certification Program

If a Federal permit for a discharge into waters of the State, including wetlands, is required, the Department must issue Water Quality Certification pursuant to §401 of the Federal Clean Water Act. Certification is required for permits issued by the U.S. Army Corps of Engineers for construction in navigable waters and for deposition of dredged or fill material.

Regulation 61-101 presents administrative and technical guidance for the water quality certification program and requires SCDHEC to consider whether or not a project is water dependent; whether or not there are feasible alternatives which will have less adverse consequences on water quality and classified uses; the intended purpose of the project; and all potential water quality impacts of the project, both direct and indirect, over the life of the project. Any project with the potential to affect waters of the State must be conducted in such a manner to maintain the specified standards and classified and existing water uses.

As a routine part of the §401 Water Quality Certification review process, the waterbody in question is identified as impaired or not impaired according to the §303(d) list. If it is impaired, the parameter of concern is noted, along with any steps required to prevent further degradation of the water quality of that waterbody. In an effort to facilitate watershed restoration where appropriate, mitigation for unavoidable wetland impacts is encouraged in areas that improve §303(d) listed waters.

Stormwater Program

Stormwater discharges result from precipitation during rain events. Runoff washes pollutants associated with industrial activities (including construction activity), agricultural operations, and commercial and household sites directly into streams, or indirectly into drainage systems that eventually drain into streams. The SCDHEC Stormwater Permitting Program focuses on pollution prevention to reduce or eliminate stormwater pollution. The Department has general permitting authority for stormwater discharges associated with industrial activity, including construction. General NPDES permits SCR000000 and SCR100000 for industrial and construction activities, respectively, require permittees to develop and implement stormwater pollution prevention plans that establish best management practices to effectively reduce or eliminate the discharge of pollutants via stormwater runoff. The Stormwater and Agricultural Permitting Section is responsible for issuing NPDES stormwater permits to prevent degradation of water quality as well as for issuing state sediment and erosion control permits for construction sites. The NPDES permit are issued under the authority of the federal Clean Water Act and the SC Pollution Control Act. The state sediment and erosion control permits are issued under the authority of two SC laws. The SC Erosion and Sediment Reduction Act of 1983 addresses construction on state owned or managed land. The SC Stormwater Management and Sediment Reduction Act of 1991 addresses construction on land that is not state owned or managed. Currently, NPDES permits are required for: construction sites 1 acre and greater; construction sites in the coastal area that are within 1/2 mile of a receiving water body; and construction sites less than 1 acre on a case-by-case basis where water quality is a concern. Permits are required under the state sediment and erosion control for construction sites that are greater than 2 acres. The state sediment and erosion program is somewhat duplicative of the NDPES Stormwater Program. The state program created by the 1991 Act can be delegated to local governments. Until a local government becomes delegated, SCDHEC's Office of Ocean and Coastal Resource Management is delegated the State Sediment and Erosion Control Program in the coastal area. The Stormwater and Agricultural Permitting Section manages the NPDES Stormwater Program in all areas of the state and the State Sediment and Erosion Control Program in the areas of the state where the program is not delegated to another entity.

Regulation 61-9 requires a compilation of all existing State water quality data with STORET data being used as a baseline. If analysis indicates a decrease in water quality then corrective measures must be taken. The permittee will identify all impaired water bodies in a Stormwater Management Plan (SWMP). In addition, existing pollution discharge control methods will be identified and incorporated into the SWMP. Procedures, processes, and methods to control the discharge of pollutants from the municipal separate storm sewer system (MS4) into impaired waterbodies and publicly owned lakes included on the §303(d) list will be described in the SWMP. The effectiveness of these controls will be assessed and necessary corrective measures, if any, shall be developed and implemented.

Permits for municipal systems allow communities to design stormwater management programs that are suited for controlling pollutants in their jurisdiction. There are three population-based categories of municipal separate storms sewers: large municipal (population of 250,000 or greater), medium municipal (population of 100,000 or more but less than 250,000), and small municipal (population less than 100,000). Large and medium MS4s have been regulated since the 1990s. Those small MS4s within

the boundaries of an urbanized area are called Regulated Small MS4s and were required to submit MS4 NPDES applications on or before March 10, 2003. MS4 NPDES Permits are required for all large, medium, and regulated small MS4s.

South Carolina Animal Feeding Operations Strategy

Among the general categories of pollution sources, agriculture ranks as the number one cause of stream and lake impairment nationwide. Many diseases can potentially be contracted from drinking water or coming into contact with waters contaminated with animal wastes. The Department uses S.C. Regulation 61-43: *Standards for the Permitting of Agricultural Animal Facilities* to address the permitting of animal feeding operations (AFOs). Implementing these regulations and their corresponding compliance efforts are a priority for the Department in order to reduce public health and environmental impacts from AFOs. There are approximately 1,100 active AFOs in SC. While previously, there were no federally defined concentrated animal feeding operations (CAFOs) in operation in South Carolina, EPA modified the definition of a CAFO in the NPDES regulations in December 2002. These regulations will now be adopted in SC. Based on the new federal CAFO definition, SC will have approximately 200 CAFOs that will require NPDES permits. Using the Watershed Program cycle and the division of the State into five regions, AFOs will be monitored and inspected by region. The §303(d) list will be used to prioritize the inspections. After all the inspections have been made in a region, the Department will move to the river basins in the next region in the watershed cycle. The Department is continuing to work in cooperation and coordination with the U.S. Department of Agriculture, the Natural Resources Conservation Service, the S.C. Department of Agriculture, the S.C. Soil and Water Conservation Districts, and the Clemson Extension Service.

Sanitary Sewer Overflow Strategy

Sanitary sewers are designed to collect municipal and industrial wastewater, with the allowance for some acceptable level of infiltration and inflow, and transport these flows to a treatment facility. When the sewer system is unable to carry these flows, the system becomes surcharged and an overflow will occur. Sanitary sewer overflows (SSOs) have existed since the introduction of separate sanitary sewers, and most are caused by inadequate operation, maintenance, and management of the collection system.

The Department encourages utilities to embrace the principals of EPA's capacity Management, Operations, and Maintenance (cMOM) program. Through this program utilities can ensure adequate funding and capacity as well as a proactive approach to operations and maintenance. Those that have implemented cMOM programs have been able to significantly reduce or eliminate overflows from their collection systems. Additionally, the Department has adopted requirements for operation and maintenance of sewer systems in Regulation 61-9, Water Pollution Control Permits.

The Department's approach has been to shift resources historically applied to treatment plant inspections to include evaluations of pump stations and collection systems where problems are suspected. To assist evaluators in identifying water quality violations related to SSOs, staff have utilized the 303(d) list of impaired waters to identify waters impacted by fecal coliform or other appropriate pollutants and

correlate those with collection systems with incidences of SSOs. The Department's Enforcement Referral Procedures Document is be used to determine when a collection system should be referred to enforcement for SSOs. The enforcement process allows for the Department to consider actions taken by the collection system such as: timely and proper notification, containment and mitigation of discharge, voluntarily conducting self evaluations, and requests for compliance assistance. The Department will take immediate action where it has been determined that SSOs have occurred and the collection system has not made timely and proper notification.

Referral Strategy for Effluent Violations

The Department has developed referral effluent violation guidelines to specifically address discharges into impaired waters. The goal of the referral guidelines is to reduce pollutant discharges into impaired waters in order to ultimately restore them to their full potential usage. To achieve this goal, enforcement actions are initiated earlier in an effort to improve the quality of waters that do not meet standards. If a stream is impaired by a pollutant and the permit limit for that pollutant is exceeded more than once in a running annual reporting period, formal enforcement action will be initiated against the discharger.

SCDHEC's Watershed Stewardship Programs

Public participation is an important component of the Department's Watershed Water Quality Management Program. Benefits to this interaction on the local level include improved public awareness about SCDHEC water programs, and increased local interest and participation in water quality improvement. Described below are some of the Department's water programs that encourage public interest and involvement in water quality. These programs and their contacts are listed on the Department's website at www.scdhec.net/water.

Source Water Assessment Program

A safe, adequate source of drinking water is key to development of communities and the health of citizens. The Safe Drinking Water Act (SDWA) provides authority to protect sources of drinking water. As a result of the 1996 amendments to the SDWA, source water protection has become a national priority. States are required to develop a plan for assessment of source waters for all federally defined public groundwater and surface water systems.

The Source Water Assessment Program (SWAP) involves determining the boundaries of the areas that are the source of waters for public water systems. For groundwater systems, these areas are defined using groundwater flow models. For surface water systems, the 14-digit Hydrologic Unit Code watershed is the designated protection area (although certain areas within the basin will be segmented as being of greater vulnerability to contamination from overland flow, groundwater contributions to surface water, and direct spills into the surface water). Known and potential sources of contamination in the delineated area must be identified, and the inventoried sources evaluated to determine the susceptibility of public water systems to such contaminants. Assessments must be made available to the public.

Local involvement will be a critical factor in the success of the SWAP, and local government, citizen groups, environmental groups, water suppliers, and the Department must all work together to increase the general public's awareness of where drinking water comes from and how to better protect sources of drinking water. Implementation of source water protection activities will occur at the local level, and local authorities may wish to base zoning and land-use planning on the source water assessments. The SWAP will be a key part of the Department's watershed management approach. To avoid duplication, information gathered from existing regulatory programs and/or watershed protection efforts will be utilized (e.g., ambient monitoring programs, TMDLs, etc.).

Consumer Confidence Reports

The Consumer Confidence Report (CCR) is an annual water quality report required of all Community water systems. The rationale behind the CCR is that consumers have a right to know what is in their drinking water and where it comes from. These reports are to educate consumers and help them make informed choices that affect the health of themselves and their families. It is believed that educated consumers are more likely to protect their drinking water sources. All CCRs are to include the following basic components:

- the water source, its location, and the availability of source water assessment plan;

- information about the water system (name and telephone number of a contact person, opportunities for public participation, and information for non-English speaking populations if applicable);
- definitions of terms and abbreviations used in the report;
- table of detected contaminants including the known or likely source of the contaminants;
- the health effects language for Maximum Contaminant Level violations and an explanation of the violation;
- information on cryptosporidium, radon, and other contaminants if applicable; and
- educational information that includes an explanation of contaminants and their presence in drinking water, an advisory for immuno-compromised people, the Safe Drinking Water Hotline telephone number, and other statements about lead, arsenic, and nitrate if applicable.

Nonpoint Source Education

The goal of the Nonpoint Source Outreach Program is to educate the citizens of South Carolina about the sources of polluted runoff and techniques that can be used to reduce this runoff. The Program provides presentations on runoff pollution to community, church, civic, or professional groups; a variety of technical and nontechnical publications on runoff pollution and reduction techniques; *Turning the Tide*, a free, quarterly Nonpoint Source newsletter; and teacher training that includes the *Action for a Cleaner Tomorrow* curriculum and information on reducing polluted runoff. To arrange a presentation, order publications, or ask questions, contact the Nonpoint Source Education coordinator at 803-898-4300 or visit our website.

South Carolina Water Watch

South Carolina Water Watch is a unique effort to involve the public and local communities in water quality protection. The Water Watch program was developed to encourage South Carolina's citizens to become stewards of the State's lakes, rivers, streams, estuaries, and wetlands. Volunteers select a water resource on which to focus and perform activities aimed at protecting water quality, such as shoreline surveys, public education, and litter cleanups. The Water Watch coordinator assists participants with materials and training to help make projects successful. SCDHEC invites individuals, school groups, civic organizations, businesses, and local governments to learn about and protect the quality of our waterways by contacting the Water Watch coordinator at 803-898-4300 or visit our website.

Champions of the Environment

Champions of the Environment is a student recognition program that raises awareness of environmental issues. Nationally recognized for its innovative approach to environmental education, the program promotes hands-on learning by recognizing students working on exemplary environmental projects beyond the realm of the classroom. With scholarships and media coverage, Champions of the Environment encourages student initiative and self-esteem. The program promotes environmental awareness, leadership, conservation, creativity, and self-confidence through activities such as group projects, public speaking, and environmental research. Champions of the Environment is jointly sponsored by Dupont, International Paper, WIS-TV, and SCDHEC. For more information contact the Champions of the Environment coordinator at 803-898-4300 or visit our website.

Clean Water State Revolving Fund

Congress created the Clean Water State Revolving Fund (SRF) in 1987, to replace the §201 Construction Grants program. In doing so, 'state banks' were created to lend money for virtually any type of water pollution control infrastructure project. Project types include construction of wastewater treatment systems and nonpoint source pollution control. The interest rate on the loans is always below the current market rate. As repayments are made on the loans, funds are recycled to fund additional water protection projects. The vast majority of the SRF funds have been used for the construction of traditional municipal wastewater treatment systems. Because of its inherent flexibility, the SRF program is well suited to accommodate the watershed approach.

SRF loans are available to units of state, local, and regional government, and special purpose districts. South Carolina law prevents loans from being made directly to private organizations and individuals. Local governments such as cities and counties and other units of government such as Soil and Water Conservation Districts, Councils of Government, and Water and Sewer Districts are encouraged to apply for SRF loans for nonpoint source projects. Nonpoint source projects may include construction and maintenance of stormwater management facilities, establishment of a stormwater utility, purchase of land for wetlands and riparian zones, and implementation of source water protection assessments. For more information, contact the State Revolving Fund coordinator at 803-898-4300 or visit our website.

Drinking Water State Revolving Fund

The Drinking Water State Revolving Fund (DWSRF), sponsored by EPA under authority of the Safe Drinking Water Act, is a long-term debt financing program offered by the State of South Carolina to provide low-interest loans to communities for construction of drinking water facilities. Municipalities, counties, special purpose districts, and some non-profit corporations are eligible to apply. DWSRF projects, those compling with the Safe Drinking Water Act and providing for public health, may include upgrading of a surface water treatment system, adding new wells, interconnecting systems, and adding treatment or storage components. For more information, contact the State Revolving Fund coordinator at 803-898-4300 or visit our website.

Salkehatchie River Basin Description

The Salkehatchie River Basin encompasses 11 watersheds and 1,021 square miles. The Salkehatchie River Basin originates in the Upper Coastal Plain region and flows through the Lower Coastal Plain and Coastal Zone regions. Of the 653,604 acres, 37.4% is forested land, 34.5% is agricultural land, 21.5% is forested wetland (swamp), 4.9% is barren land, 0.9% is urban land, 0.5% is nonforested wetland (marsh), and 0.3% is water. There are approximately 1,012 stream miles and 2,928 acres of lake waters in this basin.

The Salkehatchie River originates near the City of Barnwell and accepts drainage from Turkey Creek and Whippy Swamp before merging with the Little Salkehatchie River to form the Combahee River Basin, which empties into St. Helena Sound and the Atlantic Ocean. Prior to the confluence, the Little Salkehatchie River accepts drainage from Lemon Creek, Buckhead Creek, and Willow Swamp.

Physiographic Regions

The State of South Carolina has been divided into six Major Land Resource Areas (MLRAs) by the USDA Soil Conservation Service. The MLRAs are physiographic regions that have soils, climate, water resources, and land uses in common. The physiographic region defining the Salkehatchie River Basin is as follows:

The **Upper Coastal Plain** is an area of gentle slopes with increased dissection and moderate slopes in the northwestern section that contain the State's major farming areas; elevations range from 100 to 450 feet.

The **Lower Coastal Plain** is an area that is mostly nearly level and is dissected by many broad, shallow valleys with meandering stream channels; elevations range from 25 to 125 feet.

The **Coastal Zone** is a mostly tidally-influenced area that is nearly level and dissected by many broad, shallow valleys with meandering stream channels; most of the valleys terminate in tidal estuaries along the coast; elevations range from sea level to about 25 feet.

Land Use/Land Cover

General land use/land cover mapping for South Carolina was derived from the U.S. Geological Survey's National Land Cover Data (NLCD), based on nationwide Landsat Thematic Mapper (TM) multispectral satellite images (furnished through the Multi-Resolution Land Characteristics (MRLC) consortium, coordinated by USEPA) using image analysis software to inventory the Nation's land classes. The NLCD are developed by the USGS (EROS Data Center) using TM image interpretation, air photo interpretation, National Wetland Inventory data analysis, and ancillary data analysis.

Urban land is characterized by man-made structures and artificial surfaces related to industrial, commercial, and residential uses, and vegetated portions of urban areas such as recreational grass lands and industrial facility lawns.

Agricultural/Grass land is characterized by row crops, pastures, orchards, vineyards, and hay land, and includes grass cover in fallow, scrub/shrub, forest clearcut and urban areas.

Forest land is characterized by deciduous and evergreen trees (or a mix of these), not including forests in wetland settings, generally greater than 6 meters (approximately 20 feet) in height, with tree canopy of 25-100% cover.

Forested Wetland is saturated bottomland, mostly hardwood, forests primarily composed of wooded swamps occupying river floodplains, moist marginal forests, and isolated low-lying wet areas, located predominantly in the Coastal Plain.

Nonforested Wetland is saturated marshland, most commonly located in coastal tidelands and in isolated freshwater inland areas, found predominantly in the Coastal Plain.

Barren land is characterized by a nonvegetated condition of the land, both natural (rock, beaches, nonvegetated flats) and man-induced (rock quarries, mines, and areas cleared for construction in urban areas or clearcut forest areas).

Water (non-land) includes both fresh (inland) and saline (tidal) waters.

Soil Types

The dominant soil associations, or those soil series comprising, together, over 40% of the land area, were recorded for each watershed in percent descending order. The individual soil series for the Salkehatchie River Basin are described as follows.

Blanton soils are excessively drained soils that have loamy subsoil or are sandy throughout.

Coxville soils are deep, poorly drained soils in thick beds of clayey sediment, nearly level.

Dothan soils are well drained, sandy soils with loamy subsoil.

Fuquay soils are well drained, loamy and sandy soils with clayey or loamy subsoil.

Goldsboro soils are moderately well to poorly drained soils with loamy subsoil or nearly level ridges and in shallow depressions.

Lynchburg soils are moderately well to poorly drained soils, with loamy subsoil, on nearly level ridges and in shallow depressions.

Norfolk soils are deep, well drained soils, with loamy subsoil, nearly level and gently sloping elevated uplands.

Rains soils are moderately well to poorly drained soils, with a loamy subsoil, on nearly level ridges and in shallow depressions.

Torhunta soils are poorly drained soils, prone to flooding and ponding, with a loamy surface layer and subsoil, or are sandy throughout, on level areas.

Troup soils are well drained, sandy soils with loamy subsoil and excessively drained soils.

Varina soils are nearly level to sloping, well drained soils, with a sandy surface layer and a clayey or loamy subsoil.

Slope and Erodibility

The definition of soil erodibility differs from that of soil erosion. Soil erosion may be more influenced by slope, rainstorm characteristics, cover, and land management than by soil properties. Soil

erodibility refers to the properties of the soil itself, which cause it to erode more or less easily than others when all other factors are constant.

The soil erodibility factor, K, is the rate of soil loss per erosion index unit as measured on a unit plot, and represents an average value for a given soil reflecting the combined effects of all the soil properties that significantly influence the ease of soil erosion by rainfall and runoff if not protected. The K values closer to 1.0 represent higher soil erodibility and a greater need for best management practices to minimize erosion and contain those sediments that do erode. The range of K-factor values in the Salkehatchie River Basin is from 0.14 to 0.16.

Fish Consumption Advisory

At the time of publication, a fish consumption advisory issued by SCDHEC is in effect for the Little Salkehatchie River and portions of the Salkehatchie River advising people to limit the amount of some types of fish consumed from these waters. Fish consumption advisories are updated annually in March. For background information and the most current advisories please visit the Bureau of Water homepage at http://www.scdhec.net/water and click on "Advisories". For more information or a hard copy of the advisories, call SCDHEC's Division of Health Hazard Evaluation toll-free at (888) 849-7241.

Climate

Normal yearly rainfall in the Salkehatchie River area during the period of 1971 to 2000 was 47.98 inches, according to South Carolina's 30-year climatological record. Data from National Weather Service stations in Allendale, Blackville, Hampton, Bamburg, and Walterboro were compiled to determine general climatic information for the Salkehatchie River area. The highest seasonal rainfall occurred in the summer with 16.13 inches; 9.51, 11.56, and 10.79 inches of rain fell in the fall, winter, and spring, respectively. The average annual daily temperature was 64.4^{o}F. Summer temperatures averaged 79.4 ^{o}F, and fall, winter, and spring mean temperatures were 65.4 ^{o}F, 48.6 ^{o}F, and 64.1 ^{o}F, respectively.

Watershed Evaluations

03050207-010

(Salkehatchie River)

General Description

Watershed 03050207-010 is located in Barnwell County and consists primarily of the ***Salkehatchie River*** and its tributaries from its origin to Turkey Creek. The watershed occupies 47,235 acres of the Sand Hills and Upper Coastal regions of South Carolina. The predominant soil types consist of an association of the Fuquay-Dothan-Varina-Blanton series. The erodibility of the soil (K) averages 0.14, and the slope of the terrain averages 4% with a range of 0-10%. Land use/land cover in the watershed includes: 41.1% forested land, 31.0% agricultural land, 14.2% barren land, 10.4% forested wetland, 1.8% urban land, 0.9% nonforested wetland, and 0.6% water.

Rosemary Creek (Folk Pond) and Buck Creek (Bolen Pond) join to form the Salkehatchie River, which flows through this watershed. There are a total of 59.8 stream miles and 583.3 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
CSTL-588	BIO	FW	ROSEMARY CREEK AT S-06-167
CSTL-578	BIO	FW	BUCK CREEK AT S-06-167
CSTL-028	P	FW	SALKEHATCHIE RIVER AT SC 64, 2MI W OF BARNWELL

Rosemary Creek (CSTL-588) **–** Aquatic life uses are fully supported based on macroinvertebrate community data.

Buck Creek (CSTL-578) **-** Aquatic life uses are fully supported based on macroinvertebrate community data.

Salkehatchie River (CSTL-028) - Aquatic life uses are fully supported. There is a significant decreasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand, total phosphorus, and total nitrogen concentrations suggest improving conditions for these parameters. In sediment, P,P'DDT and its metabolites P,P'DDD and P,P' DDE were all detected in the 1998 and 1999 samples. Although the use of DDT was banned in 1973, it is very persistent in the environment. A very high concentration of lead and a high concentration of zinc were also measured in the 1998 sediment sample. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Nonpoint Source Management Program

Land Disposal Activities

Land Application Sites

LAND APPLICATION SYSTEM FACILITY NAME	*ND# TYPE*
SPRAYFIELD	ND0063061
WILLISTON/ROSEMARY CREEK WWTP	DOMESTIC

Growth Potential

There is a low to moderate potential for growth in this watershed, which contains portions of the Towns of Snelling, Elko, and Williston, the City of Barnwell, and the Savannah River Site (SRS). The Town of Snelling is located directly adjacent to SRS where S.C. Hwy 64 terminates at a controlled access/employee entrance to SRS. The Town of Snelling and the area adjacent to S.C. 64 (including a portion of Barnwell) are expected to continue experiencing slight growth due to their location to SRS's entrance.

03050207-020

(Turkey Creek)

General Description

Watershed 03050207-020 is located in Barnwell County and consists primarily of ***Turkey Creek*** and its tributaries. The watershed occupies 19,917 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Cecil-Wilkes series. The erodibility of the soil (K) averages 0.25, and the slope of the terrain averages 18%, with a range of 2-45%. Land use/land cover in the watershed includes: 37.5% agricultural land, 37.0% forested land, 10.0% forested wetland, 7.1% urban land, 6.8% barren land, 0.8% water, and 0.8% nonforested wetland.

Turkey Creek accepts drainage from Shrub Branch and Long Branch and flows through Lake Edgar A. Brown. There are a total of 21.6 stream miles and 358.1 acres of lake waters in this watershed, all classified FW. A portion of the Savannah River Site resides on the western edge of this watershed.

Surface Water Quality

Station #	Type	Class	Description
CSTL-056	BIO	FW	TURKEY CREEK AT S-06-169
CL-064	W	FW	LAKE EDGAR BROWN IN FOREBAY NEAR DAM
CSTL-001B	S	FW	TURKEY CREEK 1MI BELOW MILLIKEN/BARNWELL OUTFALL AT CLINTON ST.

Turkey Creek - There are two monitoring sites along Turkey Creek. At the upstream site ***(CSTL-056),*** aquatic life uses are fully supported based on macroinvertebrate community data. At the downstream site ***(CSTL-001B),*** aquatic life uses are fully supported. There is a significant decreasing trend in pH. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Lake Edgar Brown (CL-064) - Aquatic life uses are not supported due to chlorophyll *a* excursions. A total maximum daily load (TMDL) has been developed for CL-064 to address this impairment (see Watershed Protection and Restoration Strategies below). Although there was a dissolved oxygen excursion, due to the small number of samples, it was not considered to be a cause of nonsupport. A significant decreasing trend in total nitrogen concentration suggests improving conditions for this parameter. Recreational uses are fully supported.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)*	*NPDES#* *TYPE* *COMMENT*
TURKEY CREEK MILLIKEN & CO./BARNWELL PLT PIPE #: 001 FLOW: 1.30	SC0003093 MAJOR INDUSTRIAL

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME *FACILITY TYPE*	*PERMIT #* *STATUS*
BARNWELL CO. TRANSFER STA. TRANSFER STA.	061001-6001 ACTIVE
BARNWELL COUNTY LANDFILL DOMESTIC	061001-1101, DWP-001 INACTIVE
BARNWELL CO. C&D LANDFILL C & D	061001-1201 ACTIVE

Growth Potential

There is a low to moderate potential for growth in this watershed, which contains a portion of the City of Barnwell. The junction of S.C. Hwy 64 and U.S. Hwy 278, en route to SRS, is an area of potential commercial growth. U.S. Hwy 278 is projected to be widened and could support commerce, and perhaps industry in the Williston and Blackville areas.

Watershed Protection and Restoration Strategies

Total Maximum Daily Loads (TMDLs)

Lake Edgar Brown water quality violated aquatic life standards and did not possess a balanced indigenous aquatic community as defined by the state. Past management efforts have resulted in the lake possessing an overabundance of phosphorus with no potential for removal through normal hydrologic processes. The high phosphorus loading, in conjunction with the lake's physical characteristics and the region's long growing season have resulted in an ecosystem dominated by nuisance algae (primarily Polycystis aeruginosa) and other phytoplankton. During periods of high photosynthesis, the conversion of carbonate into carbon dioxide results in the release of excess hydroxide ions, raising the lake's pH above the state's water quality standard. High phosphorus loads produce high primary productivity, which result in high pH. The objective of this TMDL is to restore ecological balance through the removal of excess phosphorus (thus decreasing primary productivity and lowering pH) until an average phosphorus concentration of 60 mg/m3 is attained. This TMDL focuses on the effect reestablishing Turkey Creek, as a tributary, will have on the present phosphorus cycle in Lake Edgar Brown and how alterations in this cycle will affect primary production. Calculations indicate that a partial or complete reestablishment of Turkey Creek as a tributary to Lake Edgar Brown should have significant effects in reducing phosphorus

contributions from the sediments, water column phosphorus concentrations, algal growth (as represented by chlorophyll *a* levels) and pH because: 1. The continuous flow of oxygenated water should reduce the instances of anoxia at the sediment water interface and limit phosphorus release from the sediments. 2. Increased flushing will remove phosphorus suspended in the water column and both phosphorus and chlorophyll incorporated in phytoplankton biomass. As long as the flushing rate exceeds plankton growth rates, recurring algal blooms will not be a problem. Removal of phytoplankton and decreasing primary production will result in decreased pH. A 77% reduction in phosphorus loading is will be necessary to meet water quality standards during the critical period. By necessity, this reduction will come almost exclusively from the sediments.

03050207-030

(Salkehatchie River)

General Description

Watershed 03050207-030 is located in Barnwell, Bamberg, and Allendale Counties and consists primarily of the ***Salkehatchie River*** and its tributaries from Turkey Creek to Well Branch. The watershed occupies 100,798 acres of the Upper and Lower Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Fuquay-Dothan-Troup-Blanton series. The erodibility of the soil (K) averages 0.15, and the slope of the terrain averages 4%, with a range of 1-10%. Land use/land cover in the watershed includes: 41.7% agricultural land, 35.2% forested land, 14.9% forested wetland, 7.0% barren land, 0.5% urban land, 0.4% nonforested wetland, and 0.3% water.

This section of the Salkehatchie River accepts drainage from its upstream reach (03050207-010), together with Pen Branch (Fuller Pond), Hurricane Creek (Riley Mill Branch), Toby Creek (Jordan Branch), Parker Branch, Hercules Creek, Georges Creek (Juniper Creek), Birds Branch (Horsepen Bay, Chitty Pond), and Wells Branch. There are a total of 134.0 stream miles and 476.4 acres of lake waters in this watershed, all classified FW. Barnwell State Park resides near the top of the watershed just south of the Town of Blackville.

Surface Water Quality

Station #	Type	Class	Description
CSTL-003	P	FW	SALKEHATCHIE RIVER AT SC 278, 2.5MI S OF BARNWELL
CSTL-577	BIO	FW	TOBY CREEK AT S-06-29
CSTL-579	BIO	FW	BIRDS BRANCH AT S-05-567

Salkehatchie River (CSTL-003) – Aquatic life uses are fully supported. There is a significant decreasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand, total phosphorus, and total nitrogen concentrations suggest improving conditions for these parameters. Recreational uses are partially supported due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Toby Creek (CSTL-577) – Aquatic life uses are fully supported based on macroinvertebrate community data.

Birds Branch (CSTL-579) - Aquatic life uses are fully supported based on macroinvertebrate community data.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)***	***NPDES#*** ***TYPE*** ***COMMENT***
SALKEHATCHIE RIVER CITY OF BARNWELL WWTP PIPE #: 001 FLOW: 3.0	SC0047872 MAJOR DOMESTIC

Growth Potential

There is a low potential to moderate for growth in this watershed, which contains the Town of Olar and portions of the City of Barnwell and the Towns of Blackville, Hilda, Govan, and Kline. U.S. Hwy 278 is projected to be widened and could support commerce, and perhaps industry in the Williston and Blackville areas. The existing rail lines running through the Town of Blackville, could also encourage industrial growth.

03050207-040

(Salkehatchie River)

General Description

Watershed 03050207-040 is located in Bamberg, Allendale, Hampton, and Colleton Counties and consists primarily of the ***Salkehatchie River*** and its tributaries from Wells Branch to its confluence with the Little Salkehatchie River. The watershed occupies 101,441 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Rains-Torhunta-Lynchburg-Goldsboro series. The erodibility of the soil (K) averages 0.15, and the slope of the terrain averages 1.5%, with a range of 0-2%. Land use/land cover in the watershed includes: 33.0% forested land, 32.2% forested wetland, 29.9% agricultural land, 3.8% barren land, 0.6% nonforested wetland, 0.3% urban land, and 0.2% water.

This section of the Salkehatchie River accepts drainage from its upstream reaches (03050207-010, -030), together with Gin Branch, Kirkland Creek (Cypress Pond, Alligator Bay, Ocean Pond), Bear Branch, Pretty Creek, Hog Branch, and Threemile Creek (Church Branch, Meadow Branch, Big Branch). Savannah Creek (Long Branch) enters the river next, followed by Moselle Swamp, the Whippy Swamp watershed, Ricepatch Creek, and Tennants Branch. The Salkehatchie River joins with the Little Salkehatchie River watershed at the base of this watershed to form the Combahee River. There are a total of 187.7 stream miles and 171.9 acres of lake waters in this watershed, all classified FW. The Rivers Bridge State Historic Site is located in this watershed near the Threemile Creek confluence with the Salkehatchie River.

Surface Water Quality

Station #	Type	Class	Description
CSTL-048	W	FW	SALKEHATCHIE RIVER AT US 301 & US 321
CSTL-053	BIO	FW	SAVANNAH CREEK AT S-05-87
CSTL-006	P	FW	SALKEHATCHIE RIVER AT US 601, 9MI NE OF HAMPTON
CSTL-104	W	FW	SALKEHATCHIE RIVER AT SC 63

Salkehatchie River – There are three monitoring stations along this section of the Salkehatchie River. At the furthest upstream site ***(CSTL-048),*** aquatic life uses are fully supported. Recreational uses are partially supported due to fecal coliform bacteria excursions. At the next site downstream ***(CSTL-006)***, aquatic life uses are fully supported. There is a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentrations suggest improving conditions for these parameters. Recreational uses are partially supported due to fecal coliform bacteria excursions. At the downstream site ***(CSTL-104),*** aquatic life and recreational uses are fully supported.

Savannah Creek (CSTL-053) - Aquatic life uses are fully supported based on macroinvertebrate community data.

A fish consumption advisory has been issued by the Department for mercury and includes the Salkehatchie River within this watershed (see advisory p.35).

NPDES Program

Active NPDES Facilities

RECEIVING STREAM / ***FACILITY NAME*** / ***PERMITTED FLOW @ PIPE (MGD)***	***NPDES#*** / ***TYPE*** / ***COMMENT***
GIN BRANCH MOHAWK INDUSTRIES/ULMER PLT. PIPE #: 001 FLOW: 0.003	SC0004073 MINOR INDUSTRIAL
SAVANNAH CREEK TOWN OF EHRHARDT WWTP PIPE #: 01A FLOW: 0.05 PIPE #: 01B FLOW: 0.05	SC0042099 MINOR DOMESTIC

Growth Potential

There is a low potential for growth in this watershed, which contains the Town of Ulmer and a portion of Ehrhardt.

03050207-050

(Whippy Swamp)

General Description

Watershed 03050207-050 is located in Allendale and Hampton Counties and consists primarily of ***Whippy Swamp*** and its tributaries. The watershed occupies 86,752 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Rains-Norfolk-Coxville series. The erodibility of the soil (K) averages 0.16, and the slope of the terrain averages 1%, with a range of 0-6%. Land use/land cover in the watershed includes: 48.6% agricultural land, 28.0% forested land, 19.2% forested wetland, 3.0% barren land, 0.6% urban land, 0.3% nonforested wetland, and 0.3% water.

Jackson Branch (Log Branch, Tutens Millpond, Miller Swamp) originates near the Town of Allendale and merges with Caw Caw Swamp to form Whippy Swamp. Downstream of the confluence, Whippy Swamp accepts drainage from Calico Branch, Hog Branch, Bings Branch, and Sandy Run (Maulding Millpond). There are a total of 111.5 stream miles and 312.5 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
CSTL-051	BIO	FW	JACKSON BRANCH AT S-03-18
CSTL-076	W	FW	WHIPPY SWAMP AT S-25-13

Jackson Creek (CSTL-051) **–** Aquatic life uses are fully supported based on macroinvertebrate community data.

Whippy Swamp (CSTL-076) **–** Aquatic life uses are fully supported. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME *FACILITY TYPE*	*PERMIT #* *STATUS*
BAIRD WASTE INDUSTRIAL	-------- PENDING
APPLETON SANITARY LANDFILL DOMESTIC	DWP-102, 031001-1101, 032484-1101 INACTIVE
WASTEMASTER C&D LANDFILL C & D	032608-1201, 032900-1301 INACTIVE

Growth Potential

There is a low potential for growth in this watershed, which contains the Town of Sycamore and portions of the Towns of Allendale, Fairfax, and Brunson. Half of Allendale County's population lives in the Towns of Allendale and Fairfax. U.S. Hwy 278 runs between the towns and is projected to support increased commercial growth. Due to growth in the Allendale-Fairfax area, the Town of Allendale's treatment facility has been expanded and there is a rail line that could support future industry.

03050207-060

(Little Salkehatchie River)

General Description

Watershed 03050207-060 is located in Barnwell and Bamberg Counties and consists primarily of the ***Little Salkehatchie River*** and its tributaries from its origin to Lemon Creek. The watershed occupies 70,111 acres of the Upper and Lower Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Fuquay-Dothan-Troup-Rains series. The erodibility of the soil (K) averages 0.16, and the slope of the terrain averages 3%, with a range of 0-10%. Land use/land cover in the watershed includes: 41.4% agricultural land, 36.1% forested land, 17.1% forested wetland, 3.8% barren land, 0.7% urban land, 0.5% nonforested wetland, and 0.4% water.

The Little Salkehatchie River originates in the Town of Blackville and accepts drainage from Lake Cynthia, Guess Pond, Brooker Pond, Ghants Branch, Halfmoon Branch, and Long Gall Branch. Further downstream, the river accepts drainage from Long Pond, Ben Rice Bay, Colston Branch (Ben Rice Branch, Doussoss Bay, Indian Camp Branch, McMillian Branch), and Long Branch (Little Clear Pond, Clear Pond). There are a total of 111.7 stream miles and 397.4 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
CSTL-566	BIO	FW	LITTLE SALKEHATCHIE RIVER AT SC 70
CSTL-115	W	FW	LITTLE SALKEHATCHIE RIVER AT US 601

Little Salkehatchie River – There are two monitoring sites along this section of the Little Salkehatchie River. Aquatic life uses are fully supported at the upstream site ***(CSTL-566)*** based on macroinvertebrate community data. Aquatic life and recreational uses are fully supported at the downstream site ***(CSTL-115)***.

A fish consumption advisory has been issued by the Department for mercury and includes the Little Salkehatchie River within this watershed (see advisory p.35).

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)***	***NPDES#*** ***TYPE*** ***COMMENT***
LITTLE SALKEHATCHIE RIVER CITY OF DENMARK PIPE #:001 FLOW: 0.612 PIPE #:002 FLOW: 0.388 (winter only) IF BOTH PIPES DISCHARGING, LIMITED TO 1.0 MGD COMBINED	SC0040215 MINOR DOMESTIC LAND DISPOSAL DISCHARGE TO STREAM

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME *FACILITY TYPE*	*PERMIT #* *STATUS*
UNION CAMP INDUSTRIAL	IWP-198 INACTIVE

Growth Potential

There is a low potential for growth in this watershed, which contains portions of the City of Denmark and the Towns of Blackville, Hilda, Govan, and Ehrhardt. The rail lines and sewer systems already in place may encourage slight growth.

03050207-070

(Lemon Creek)

General Description

Watershed 03050207-070 is located in Bamberg County and consists primarily of ***Lemon Creek*** and its tributaries. The watershed occupies 44,154 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Rains-Fuquay-Coxville-Troup-Dothan series. The erodibility of the soil (K) averages 0.15, and the slope of the terrain averages 3%, with a range of 0-10%. Land use/land cover in the watershed includes: 43.6% forested land, 29.4% agricultural land, 18.7% forested wetland, 3.7% urban land, 3.6% barren land, 0.8% nonforested wetland, and 0.2% water.

Lemon Creek originates in the City of Denmark and accepts drainage from Grapevine Branch, Halfmoon Branch, Colt Branch, Hog Bay, and Tony Hill Bay before flowing into the Little Salkehatchie River. There are a total of 79.1 stream miles and 475.9 acres of lake waters in this watershed. Lemon Creek is classified FW* (DO not less than 4mg/l and pH 5.0-8.5) and its tributaries are classified FW.

Surface Water Quality

Station #	Type	Class	Description
CSTL-576	BIO	FW*	LEMON CREEK AT S-05-74
CSTL-116	W	FW*	LEMON CREEK AT S-15-541

Lemon Creek - There are two monitoring sites along Lemon Creek. At the upstream site ***(CSTL-576)***, aquatic life uses are fully supported based on macroinvertebrate community data. At the downstream site ***(CSTL-116),*** aquatic life uses are fully supported, but recreational uses are partially supported due to fecal coliform bacteria excursions.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)***	***NPDES#*** ***TYPE*** ***COMMENT***
LEMON CREEK GRIFFIN OIL CO./BAMBERG CITGO PIPE #: 001 FLOW: M/R	SCG830019 MINOR INDUSTRIAL

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME *FACILITY TYPE*	*PERMIT #* *STATUS*
BAMBERG COUNTY LANDFILL TRANSFER STATION	051001-6001 ACTIVE
BAMBERG COUNTY LANDFILL DOMESTIC	DWP-052, 051001-1101 INACTIVE
BAMBERG COUNTY C&D LANDFILL C & D	051001-1201 INACTIVE

Land Application Sites

LAND APPLICATION SYSTEM *FACILITY NAME*	*ND#* *TYPE*
SPRAYFIELD TOWN OF BAMBERG	ND0063398 DOMESTIC

Mining Activities

MINING COMPANY *MINE NAME*	*PERMIT #* *MINERAL*
BAMBERG COUNTY CAMP SAND PIT	0287-09 SAND/CLAY

Growth Potential

There is a low potential for growth in this watershed, which contains a portion of the City of Denmark and a portion of the Town of Bamberg. The only commerce in the area is along U.S. Hwy 78, which is projected to be widened and could serve to increase commerce. Rail lines run through Bamberg to Denmark, and another through Denmark to the City of Columbia in one direction and toward the Savannah River in the other; the rail system already in place may encourage industrial growth. Growth is currently limited by the treatment system capacity.

03050207-080

(Little Salkehatchie River)

General Description

Watershed 03050207-080 is located in Bamberg and Colleton Counties and consists primarily of the ***Little Salkehatchie River*** and its tributaries from Lemon Creek to Willow Swamp. The watershed occupies 51,901 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Lynchburg-Torhunta-Rains-Goldsboro-Coxville series. The erodibility of the soil (K) averages 0.16, and the slope of the terrain averages 1.5%, with a range of 0-10%. Land use/land cover in the watershed includes: 40.4% forested land, 28.5% agricultural land, 26.5% forested wetland, 3.9% barren land, 0.4% nonforested wetland, 0.2% water, and 0.1% urban land,.

This section of the Little Salkehatchie River accepts drainage from its upstream reach (03050207-060), together with Drawdy Branch, Hurricane Branch, Little Swamp (Bull Bay), Oldfield Creek, and Bryans Lake. There are a total of 103.7 stream miles and 75.7 acres of lake waters in this watershed, all classified FW.

Water Quality

Station #	Type	Class	Description
CSTL-117	W	FW	LITTLE SALKEHATCHIE RIVER AT SC 64

Little Salkehatchie River (CSTL-117) - Aquatic life uses are fully supported. Recreational uses are partially supported due to fecal coliform bacteria excursions.

A fish consumption advisory has been issued by the Department for mercury and includes the Little Salkehatchie River within this watershed (see advisory p.35).

Growth Potential

There is a low potential for growth in this watershed, which contains portions of the Towns of Lodge and Ehrhardt.

03050207-090

(Buckhead Creek)

General Description

Watershed 03050207-090 is located in Bamberg and Colleton Counties and consists primarily of ***Buckhead Creek*** and its tributaries. The watershed occupies 50,981 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Rains-Lynchburg-Goldsboro series. The erodibility of the soil (K) averages 0.16, and the slope of the terrain averages 1%, with a range of 0-3%. Land use/land cover in the watershed includes: 53.5% forested land, 22.0% agricultural land, 19.5% forested wetland, 4.1% barren land, 0.4% urban land, 0.4% nonforested wetland, and 0.1% water.

Buckhead Creek accepts drainage from Steedley Branch, Bear Creek, Hog Branch, and Deep Bottom Creek (Fosters Bay) before flowing into the Little Salkehatchie River. There are a total of 91.9 stream miles and 57.8 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
CSTL-119	W	FW	BUCKHEAD CREEK AT SC 212

Buckhead Creek (CSTL-119) – Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although dissolved oxygen and pH excursions occurred, they were typical of values seen in blackwater systems and are considered natural, not standards violations. Recreational uses are not supported due to fecal coliform bacteria excursions.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)***	***NPDES#*** ***TYPE*** ***COMMENT***
BUCKHEAD CREEK RUFFIN HIGH SCHOOL/COLLETON BRD ED PIPE #: 001 FLOW: 0.015	SC0033766 MIN0R DOMESTIC

Growth Potential

There is a low potential for growth in this watershed, which contains the Towns of Smoaks and Williams.

03050207-100

(Willow Swamp)

General Description

Watershed 03050207-100 is located in Bamberg and Colleton Counties and consists primarily of ***Willow Swamp*** and its tributaries. The watershed occupies 37,479 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Rains-Lynchburg-Goldsboro-Torhunta series. The erodibility of the soil (K) averages 0.16, and the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 36.6% forested land, 32.9% agricultural land, 27.3% forested wetland, 2.6% barren land, 0.4% nonforested wetland, 0.1% urban land, and 0.1% water.

Ashton Branch and McCuren Branch (Fender Creek) join to form Willow Swamp, which accepts drainage from Dry Branch, Cedar Branch, and Rum Gully before flowing into the Little Salkehatchie River. There are a total of 67.0 stream miles and 10.8 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
CSTL-118	W	FW	WILLOW SWAMP AT S-15-27

Willow Swamp (CSTL-118) - Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low dissolved oxygen concentrations. Although dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and are considered natural, not standards violations. Recreational uses are not supported due to fecal coliform bacteria excursions.

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME	*PERMIT #*
FACILITY TYPE	*STATUS*
SOUTHEASTERN RESEARCH AND RECOVERY	052632-2001
DOMESTIC	ACTIVE

Growth Potential

There is a low potential for growth in this watershed, which contains portions of the Towns of Lodge and Ehrhardt.

03050207-110

(Little Salkehatchie River)

General Description

Watershed 03050207-110 is located in Colleton County and consists primarily of the ***Little Salkehatchie River*** and its tributaries from Willow Swamp to its confluence with the Salkehatchie River. The watershed occupies 42,836 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Lynchburg-Torhunta-Rains-Goldsboro-Coxville series. The erodibility of the soil (K) averages 0.15, and the slope of the terrain averages 1% with a range of 0-2%. Land use/land cover in the watershed includes: 42.2% forested land, 34.8% forested wetland, 19.4% agricultural land, 3.3% barren land, 0.2% nonforested wetland, and 0.1% water.

This section of the Little Salkehatchie River accepts drainage from its upstream reach (03050207-060, -080), together with Indian Creek, Deep Creek, and Sandy Run. The Little Salkehatchie River joins with the Salkehatchie River watershed to form the Combahee River. There are a total of 43.4 stream miles and 7.7 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
CSTL-120	W	FW	LITTLE SALKEHATCHIE RIVER AT SC 63
CSTL-585	BIO	FW	SANDY RUN AT US 21

Little Salkehatchie River (CSTL-120) - Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low dissolved oxygen concentrations. Although dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and are considered natural, not standards violations. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Sandy Run (CSTL-585) – Aquatic life uses are fully supported based on macroinvertebrate community data.

A fish consumption advisory has been issued by the Department for mercury and includes the Little Salkehatchie River within this watershed (see advisory p.35).

Growth Potential

There is a low potential for growth in this watershed.

Combahee/Ashepoo/Broad River Basin Description

The ***Combahee/Ashepoo/Broad River Basin*** encompasses 14 watersheds and 2,241 square miles. The Combahee/Ashepoo/Broad River Basin flows through the Lower Coastal Plain and Coastal Zone regions. Of the some 1.4 million acres, 38.4% is forested land, 18.6% is forested wetland (swamp), 16.6% is water, 11.9% is agricultural land, 8.7% is nonforested wetland (marsh), 3.5% is barren land, and 2.3% is urban land. The urban land percentage is comprised chiefly of Hilton Head Island and the Beaufort area. There are approximately 808 stream miles, 1,751 acres of lake waters, and 129,683 acres of estuarine areas in this basin.

The Combahee River is formed from the confluence of the Salkehatchie and Little Salkehatchie River and flows into the Coosaw River. The Coosaw River joins the Morgan River, the Harbor River, and the Ashepoo River to form St. Helena Sound. The Ashepoo River originates near the City of Walterboro and accepts drainage from Horseshoe Creek before flowing into St. Helena Sound. The Coosawhatchie River originates near the Town of Allendale, and accepts drainage from Black Creek (Lake George Warren) and Cypress Creek before merging with the Pocotaligo River to form the Broad River. The Broad River joins the Chechessee River and the Beaufort River to form Port Royal Sound. Calibogue Sound accepts drainage from the May River, the Cooper River, and Broad Creek, and is connected to Port Royal Sound via the Atlantic Intracoastal Waterway (AIWW). The AIWW continues to connect the system to the New River (Great Swamp), the Wright River, and the Savannah River, all draining into the Atlantic Ocean.

Physiographic Regions

The State of South Carolina has been divided into six Major Land Resource Areas (MLRAs) by the USDA Soil Conservation Service. The MLRAs are physiographic regions that have soils, climate, water resources, and land uses in common. The physiographic region that defines the Combahee River/Ashepoo River/Broad River Basin is as follows:

The **Lower Coastal Plain** is an area that is mostly nearly level and is dissected by many broad, shallow valleys with meandering stream channels; elevations range from 25 to 125 feet.

The **Coastal Zone** is a mostly tidally-influenced area that is nearly level and dissected by many broad, shallow valleys with meandering stream channels; most of the valleys terminate in tidal estuaries along the coast; elevations range from sea level to about 25 feet.

Land Use/Land Cover

General land use/land cover mapping for South Carolina was derived from the U.S. Geological Survey's National Land Cover Data (NLCD), based on nationwide Landsat Thematic Mapper (TM) multispectral satellite images (furnished through the Multi-Resolution Land Characteristics (MRLC) consortium, coordinated by USEPA) using image analysis software to inventory the Nation's land classes. The NLCD are developed by the USGS (EROS Data Center) using TM image interpretation, air photo interpretation, National Wetland Inventory data analysis, and ancillary data analysis.

Urban land is characterized by man-made structures and artificial surfaces related to industrial, commercial, and residential uses, and vegetated portions of urban areas such as recreational grass lands and industrial facility lawns.

Agricultural/Grass land is characterized by row crops, pastures, orchards, vineyards, and hay land, and includes grass cover in fallow, scrub/shrub, forest clearcut and urban areas.

Forest land is characterized by deciduous and evergreen trees (or a mix of these), not including forests in wetland settings, generally greater than 6 meters (approximately 20 feet) in height, with tree canopy of 25-100% cover.

Forested Wetland is saturated bottomland, mostly hardwood, forests primarily composed of wooded swamps occupying river floodplains, moist marginal forests, and isolated low-lying wet areas, located predominantly in the Coastal Plain.

Nonforested Wetland is saturated marshland, most commonly located in coastal tidelands and in isolated freshwater inland areas, found predominantly in the Coastal Plain.

Barren land is characterized by a nonvegetated condition of the land, both natural (rock, beaches, nonvegetated flats) and man-induced (rock quarries, mines, and areas cleared for construction in urban areas or clearcut forest areas).

Water (non-land) includes both fresh (inland) and saline (tidal) waters.

Soil Types

The dominant soil associations, or those soil series comprising, together, over 40% of the land area, were recorded for each watershed in percent descending order. The individual soil series for the Combahee/Ashepoo/Broad River Basin are described as follows.

Albany soils are deep, somewhat poorly drained soils with sandy to loamy subsoil on nearly level terrain.

Argent soils are poorly drained soils on low, nearly level areas and low ridges.

Bladen soils are poorly drained soils on low, nearly level areas and low ridges.

Blanton soils are excessively drained soils that have loamy subsoil or are sandy throughout.

Bohicket soils are very poorly drained soils, clayey throughout or mucky and underlain with clayey layers, frequently flooded.

Bonneau soils are deep, moderately well drained soils with loamy subsoil on ridges.

Capers soils are very poorly drained soils, clayey throughout or mucky, and underlain with clayey layers, frequently flooded.

Chipley soils are moderately to excessively well drained soils, sandy throughout, on high ridges.

Coosaw soils are somewhat to poorly drained soils, with a moderately thick sandy surface layer and loamy subsoil, on ridges and in depressions.

Echaw soils are well drained soils, sandy throughout on broad, nearly level to gently sloping ridges.

Goldsboro soils are moderately well to poorly drained soils with loamy subsoil or nearly level ridges and in shallow depressions.

Lakeland soils are well drained, sandy soils with loamy subsoil and excessively drained soils.

Lynchburg soils are moderately well to poorly drained soils, with loamy subsoil, on nearly level ridges and in shallow depressions.

Lynnhaven soils are poorly drained sandy soils, with sandy subsoil, in low areas, and prone to ponding.

Norfolk soils are deep, well drained soils, with loamy subsoil, nearly level and gently sloping elevated uplands.

Ocilla soils are somewhat poorly to moderately well drained soils with a thick sandy surface layer and a loamy subsoil, or sandy throughout.

Ogeechee soils are poorly drained and moderately well drained, loamy soils with clayey or loamy subsoil, on terraces.

Okeetee soils are deep, somewhat poorly drained soils, with clayey subsoil, on broad low ridges.

Paxville somewhat to very poorly drained soils, with a loamy subsoil, on low ridges and in depressions.

Pungo soils are very poorly drained soils, mucky throughout or loamy and underlain with clayey layers, rarely or frequently flooded with freshwater.

Pelham soils are deep, poorly drained soils, with a loamy subsoil, on broad flats and in depressions.

Rains soils are moderately well to poorly drained soils, with a loamy subsoil, on nearly level ridges and in shallow depressions.

Santee soils are very poorly drained soils on low nearly level areas.

Wahee soils are poorly drained soils on low, nearly level areas and low ridges.

Slope and Erodibility

The definition of soil erodibility differs from that of soil erosion. Soil erosion may be more influenced by slope, rainstorm characteristics, cover, and land management than by soil properties. Soil erodibility refers to the properties of the soil itself, which cause it to erode more or less easily than others when all other factors are constant.

The soil erodibility factor, K, is the rate of soil loss per erosion index unit as measured on a unit plot, and represents an average value for a given soil reflecting the combined effects of all the soil properties that significantly influence the ease of soil erosion by rainfall and runoff if not protected. The K values closer to 1.0 represent higher soil erodibility and a greater need for best management practices to minimize erosion and contain those sediments that do erode. The range of K-factor values in the Combahee/Ashepoo/Broad River Basin is from 0.08 to 0.19.

Fish Consumption Advisory

At the time of publication, a fish consumption advisory issued by SCDHEC is in effect for

portions of the Ashepoo River, Chessey Creek, Combahee River, Coosawhatchie River, Horseshoe Creek, and the New River advising people to limit the amount of some types of fish consumed from these waters. Fish consumption advisories are updated annually in March. For background information and the most current advisories please visit the Bureau of Water homepage at http://www.scdhec.gov/water and click on "Advisories". For more information or a hard copy of the advisories, call SCDHEC's Division of Health Hazard Evaluation toll-free at (888) 849-7241.

Climate

Normal yearly rainfall in the Combahee/Ashepoo/Broad River area during the period of 1971 to 2000 was 49.56 inches, according to South Carolina's 30-year climatological record. Data from National Weather Service stations in Allendale, Hampton, Yemassee, Hilton Head, Beaufort MCAS, Beaufort WWTP, Edisto Island, and Walterboro were compiled to determine general climatic information for the Combahee/Ashepoo/Broad River area. The highest seasonal rainfall occurred in the summer with 17.61 inches; 10.62, 10.94, and 10.39 inches of rain fell in the fall, winter, and spring, respectively. The average annual daily temperature was 65.0^{o}F. Summer temperatures averaged 79.9 ^{o}F, and fall, winter, and spring mean temperatures were 66.4 ^{o}F, 49.4 ^{o}F, and 64.4 ^{o}F, respectively.

Watershed Evaluations

03050208-010

(Combahee River)

General Description

Watershed 03050208-010 is located in Colleton and Beaufort Counties and consists primarily of tributaries of the ***Combahee River***. This watershed occupies 167,626 acres of the Lower Coastal Plain and Coastal Zone regions of South Carolina. The predominant soil types consist of an association of the Bohicket-Bladen-Coosaw-Capers-Wahee series. The erodibility of the soil (K) averages 0.12, and the slope of the terrain averages 1%, with a range of 0-6%. Land use/land cover in the watershed includes: 43.7% forested land, 24.4% forested wetland, 14.4% nonforested wetland, 8.8% agricultural land, 2.7% barren land, 5.5% water, and 0.5% urban land.

The Combahee River is formed by the confluence of the Salkehatchie River and the Little Salkehatchie River watersheds. Downstream of the confluence, the Combahee River accepts drainage from Bull Creek, Black Creek, and Cuckolds Creek (Bluehouse Swamp, Folly Creek). Further downstream, the Chehaw River (Social Hall Creek) enters the Combahee River followed by the New Chehaw River and a portion of the Ashepoo-Coosaw Cutoff at the base of the watershed. There are a total of 138.1 stream miles, 39.0 acres of lake waters, and 4,362.4 estuarine acres in this watershed. Upstream of the saltwater intrusion (in the vicinity of U.S. Hwy 17), the Combahee River and its tributaries are classified FW; downstream of the intrusion, the Combahee River and its tributaries are classified SFH.

Surface Water Quality

Station #	Type	Class	Description
CSTL-583	BIO	FW	BLACK CREEK AT U.S. HWY 21
CSTL-111	S	FW	COMBAHEE RIVER BELOW YEMASSEE SEWAGE OUTFALL
CSTL-098	P	FW/SFH	COMBAHEE RIVER AT U.S. HWY 17, 10MI ESE OF YEMASSEE

Black Creek (CSTL-583) **–** Aquatic life uses are fully supported based on macroinvertebrate community data.

Combahee River **–** There are two monitoring stations along the Combahee River. Aquatic life uses are fully supported at the upstream site ***(CSTL-111)***. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although dissolved oxygen and pH excursions occurred, they were typical of values seen in blackwater systems and are considered natural, not standards violations. Significant decreasing trends in five-day biochemical oxygen demand and turbidity suggest improving conditions for these parameters. Recreational uses are fully supported at this site.

The downstream site ***(CSTL-098)*** is located in an area that is transitional between fresh and salt waters. Under the freshwater standards, aquatic life uses are fully supported. Although dissolved oxygen

excursions were noted, they were typical of values seen in such transitional areas and are considered natural, not standards violations. There is a significant decreasing trend in dissolved oxygen concentration and a significant increasing trend in turbidity. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. In sediment, bis (2-ethylhexyl) phthalate was detected in the 1996 sample, and P,P'DDD, a metabolite of DDT, was detected in the 1997 sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. Recreational uses are fully supported at this site and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Under the saltwater standards, aquatic life uses are also fully supported. Although dissolved oxygen and pH excursions of the saltwater standards were noted, they were typical of values seen in such transitional areas and are considered natural, not standards violations. There is a significant decreasing trend in dissolved oxygen concentration and a significant increasing trend in turbidity. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. In sediment, bis (2-ethylhexyl) phthalate was detected in the 1996 sample. In the 1997 sample P,P'DDD, a metabolite of DDT, was measured in excess of the TEL value, but was less than the PEL value (McDonald, 1994). Recreational uses are fully supported at this site and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

In an effort to remove aquatic plants at public access points, the main river channel, and connecting lakes, aquatic herbicides were applied in 1998,1999, and 2002, and there are plans to apply herbicides in 2003.

A fish consumption advisory has been issued by the Department for mercury and includes the Combahee River within this watershed (see advisory p.58).

Shellfish Monitoring Stations

Station #	Description
14-05	COMBAHEE RIVER INLET AND COOSAW RIVER

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)***	***NPDES#*** ***TYPE*** ***COMMENT***
COMBAHEE RIVER TOWN OF YEMASSEE PIPE #: 001 FLOW: 0.24	SC0025950 MINOR DOMESTIC

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME	***PERMIT #***

FACILITY TYPE	*STATUS*
CITY OF WALTERBORO C&D	----------
C & D	PENDING
HURRICANE #3	----------
DOMESTIC	PENDING

Growth Potential

There is a low potential for growth in this watershed, which contains the Town of Yemassee.

03050208-020

(Great Swamp)

General Description

Watershed 03050208-020 is located in Colleton County and consists primarily of ***Great Swamp*** and its tributaries. The watershed occupies 90,906 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Rains-Lynchburg-Goldsboro-Echaw-Blanton series. The erodibility of the soil (K) averages 0.15, and the slope of the terrain averages 1%, with a range of 0-6%. Land use/land cover in the watershed includes: 52.3% forested land, 23.5% forested wetland, 14.7% agricultural land, 5.8% barren land, 2.8% urban land, 0.6% nonforested wetland, and 0.3% water.

Jones Swamp Creek (Big Bay) joins with Doctors Creek (Perry Creek) near the City of Walterboro to form Great Swamp. Great Swamp accepts drainage from Ireland Creek (Allen Creek) and Bluehouse Swamp (Remick Swamp) before draining into the Ashepoo River. Bluehouse Swamp also drains into the Combahee River basin. There are a total of 169.8 stream miles and 107.0 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
CSTL-044	S/BIO	FW	IRELAND CREEK AT S-15-116, 5.5MI N OF WALTERBORO
CSTL-584	BIO	FW	BLUEHOUSE SWAMP AT S-15-41

Ireland Creek (CSTL-044)) – Aquatic life uses are fully supported based on macroinvertebrate community data. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although dissolved oxygen and pH excursions occurred, they were typical of values seen in blackwater systems and are considered natural, not standards violations. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are not supported due to fecal coliform bacteria excursions.

Bluehouse Swamp (CSTL-584) – Aquatic life uses are not supported based on macroinvertebrate community data.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM / ***FACILITY NAME*** / ***PERMITTED FLOW @ PIPE (MGD)***	***NPDES#*** / ***TYPE*** / ***COMMENT***
IRELAND CREEK	SCG250037
ASTEN DRYER FABRICS INC.	MINOR INDUSTRIAL
PIPE #: 001 FLOW: M/R	
IRELAND CREEK	SC0002135
CCX FIBERGLASS PRODUCTS DIV.	MAJOR INDUSTRIAL

PIPE #: 001 FLOW: 0.037
PIPE #: 002 FLOW: 0.0171

IRELAND CREEK — SC0040436
CITY OF WALTERBORO WWTP — MAJOR DOMESTIC
PIPE #: 001 FLOW: 2.64

Groundwater Quality

Well #	Class	Aquifer	Location
AMB-031	GB	MIDDENDORF	WALTERBORO (50)
AMB-094	GB	TERTIARY LIMESTONE	WALTERBORO (29)

All water samples collected from ambient monitoring wells ***AMB-031*** and ***AMB-094*** met standards for Class GB groundwater.

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME *FACILITY TYPE*	*PERMIT #* *STATUS*
COLLETON COUNTY LANDFILL DOMESTIC	DWP-111, DWP-121, DWP-076 INACTIVE
COLLETON COUNTY LANDFILL #2 DOMESTIC	--------- INACTIVE
COLLETON COUNTY LANDFILL (OLD) DOMESTIC	DWP-039 INACTIVE
COLLETON COUNTY LANDFILL DOMESTIC	151001-1101 INACTIVE
COLLETON COUNTY TRANSFER STATION TRANSFER STATION	151001-6002, 151001-6001 INACTIVE
CMEG INC. DOMESTIC	152609-2001 ACTIVE
EAGLE DISPOSAL CO. DOMESTIC	152630-2001 ACTIVE

Mining Activities

MINING COMPANY *MINE NAME*	*PERMIT #* *MINERAL*
REA CONSTRUCTION COMPANY MINE #9	0602-29 SAND
NETTLES SAND COMPANY, INC. PINKNEY MINE	0968-29 SAND

JETER CONSTRUCTION CO., INC. JETER SAND PIT #3	1035-29 SAND
NETTLES SAND COMPANY, INC. NETTLES PIT #2	1071-29 SAND
BRUCE W. GILLISPIE GILLISPIE	1260-29 SAND/CLAY
REA CONSTRUCTION COMPANY SAUNDERS SAND PIT	1268-29 SAND/CLAY
THREE RIVER CONSTRUCTION CO. RATTLESNAKE PIT	1177-29 SAND/CLAY
PALMETTO CONSTRUCTION HUGHES MINE	1232-29 SANDCLAY
WOOD BROTHERS CONSTRUCTION WALKER PIT	1193-29 SAND/CLAY

Growth Potential

There is a low to moderate potential for growth in this watershed, which contains a large portion of the City of Walterboro. Existing rail lines, the new Aldrin Business and Technology Park outside of Walterboro, and the city's proximity to I-95 make industrial growth a possibility in this watershed.

03050208-030

(Horseshoe Creek)

General Description

Watershed 03050208-030 is located in Colleton County and consists primarily of ***Horseshoe Creek*** and its tributaries. The watershed occupies 82,180 acres of the Lower Coastal Plain and Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Wahee-Bladen-Ogeechee-Argent-Santee series. The erodibility of the soil (K) averages 0.16, and the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 53.5% forested land, 28.4% forested wetland, 12.3% agricultural land, 2.4% barren land, 1.9% nonforested wetland, 1.1% urban land, and 0.4% water.

Fuller Swamp Creek and Chessey Creek (Logging Savanna, Oats Hole, Warrens Savanna) join to form Horseshoe Lead Creek, which in turn merges with Baptist Church Branch to form Horseshoe Creek near the Town of Cottageville. Shereau Branch and Sandy Dam Branch join to form another Chessey Creek (Pringle Creek), which flows into Horseshoe Creek at the base of the watershed. There are a total of 91.0 stream miles and 88.4 estuarine acres in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
CSTL-581	BIO	FW	FULLER SWAMP CREEK AT US 17A
CSTL-580	BIO	FW	CHESSEY CREEK AT S-15-45
CSTL-071	W	FW	HORSESHOE CREEK AT SC 64

Fuller Swamp Creek (CSTL-581) **–** Aquatic life uses are not supported based on macroinvertebrate community data.

Chessey Creek (CSTL-580) **–** Aquatic life uses are not supported based on macroinvertebrate community data.

Horseshoe Creek (CSTL-071) **–** Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although dissolved oxygen and pH excursions occurred, they were typical of values seen in blackwater systems and are considered natural, not standards violations. Recreational uses are fully supported.

A fish consumption advisory has been issued by the Department for mercury and includes Chessey Creek and Horseshoe Creek within this watershed (see advisory p.58).

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME	*PERMIT #*
FACILITY TYPE	*STATUS*
HENDERSONVILLE C&D	----------
C & D	PENDING

Mining Activities

MINING COMPANY	*PERMIT #*
MINE NAME	*MINERAL*
COLLETON COUNTY	1050-29
GRIFFITH BORROW PIT	SAND/CLAY
SMITHS BACKHOE SERVICES, INC.	1060-29
SMITH PIT	SAND/CLAY

Growth Potential

There is a moderate potential for growth in this watershed, which contains the Town of Cottageville and a portion of the City of Walterboro. Existing rail lines, the new Aldrin Business and Technology Park outside of Walterboro, and the city's proximity to I-95 make industrial growth a possibility in this portion of the watershed. Cottageville is projected to continue experiencing residential and commercial growth, spilling over from the City of Charleston. However, the current and proposed growth lies in areas with inadequate sewer service. Less than 25% of the total land area is suitable for septic system installations; and another 25-50% or less is classified as marginally suitable.

03050208-040

(Ashepoo River)

General Description

Watershed 03050208-040 is located in Colleton County and consists primarily of the ***Ashepoo River*** and its tributaries. The watershed occupies 82,666 acres of the Coastal Zone region of South Carolina. The predominant soil types consist of an association of the Bohicket-Pungo-Bladen-Wahee series. The erodibility of the soil (K) averages 0.10, and the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 37.0% forested land, 24.2% nonforested wetland, 17.8% forested wetland, 12.3% water, 6.3% agricultural land, 2.2% barren land, and 0.2% urban land.

The Ashepoo River is created by the confluence of Great Swamp and Bluehouse Swamp in 03050208-020. Downstream of the confluence, the Ashepoo River accepts drainage from Johno Creek, the Horseshoe Creek Watershed, Deer Creek (Snuggedy Swamp), Hole in the Wall, Rock Creek, and Crooked Creek. Further downstream, Mosquito Creek (Musselboro Creek, Bull Cut) enters the river followed by the Ashepoo-Coosaw Cut (AIWW), the Fenwick Cut (to Edisto River), and Bank Creek. Rock Creek, Fish Creek (Jefford Creek, Pine Island Creek, Otter Creek), and Two Sisters Creek (Long Ashepoo Creek) drain into the both the Ashepoo River and St. Helena Sound. There are a total of 40.4 stream miles, 92.7 acres of lake waters, and 4,664.5 estuarine acres in this watershed. The Ashepoo River and its tributaries are classified FW above the saltwater intrusion and SFH below the intrusion.

Surface Water Quality

Station #	Type	Class	Description
CSTL-068	P	FW/SFH	ASHEPOO RIVER AT SC 303, 10MI SSW OF WALTERBORO
CSTL-069	S	SFH	ASHEPOO RIVER AT US 17, 3.4MI ESE OF GREEN POND
MD-251	W	SFH	ASHEPOO RIVER AT S-15-26

Ashepoo River - There are three monitoring sites along the Ashepoo River. The upstream site ***(CSTL-068)*** is located in an area that is transitional between fresh and salt waters. Aquatic life uses are fully supported **under both freshwater and saltwater criteria**. Although dissolved oxygen and pH excursions were noted, they were typical of values seen in such transitional areas and are considered natural, not standards violations. There is a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Aquatic life uses are fully supported at the midstream site ***(CSTL-069)***. This is a tidally influenced system with marsh drainage, which are often characterized by naturally low pH and dissolved oxygen concentrations. Although pH and dissolved oxygen excursions were noted, they were typical of values seen in such systems and are considered natural, not standards violations. There is a significant decreasing trend in dissolved oxygen concentration. A significant decreasing trend in five-day

biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are fully supported.

At the downstream site ***(MD-251)***, aquatic life uses are not supported due to turbidity excursions. This is a tidally influenced system, which are often characterized by naturally low pH and dissolved oxygen concentrations. Although pH and dissolved oxygen excursions were noted, they were typical of values seen in such systems and are considered natural, not standards violations. Recreational uses are fully supported.

In an effort to reduce water hyacinth populations throughout the water system, aquatic herbicides were applied to the river by SCDNR from 1997-1999, and planned for 2003. An ongoing strategy to prevent further introduction of problem species is carried out through public education, surveys of the waterbody, and enforcement of existing regulations.

A fish consumption advisory has been issued by the Department for mercury and includes the Ashepoo River within this watershed (see advisory p.57).

Shellfish Monitoring Stations

Station #	Description
13-13	MOUTH OF FISH CREEK AT OTTER ISLAND AND ATLANTIC OCEAN
13-15	HEADWATERS OF PINE ISLAND CREEK AT THE FORK
13-26	4,000 FT FROM CONFL. OF FISH CK & ATLANTIC OCEAN; AT FIRT "T" IN FISH CK
14-19	ASHEPOO RIVER POG
14-20	CUT BETWEEN SOUTH EDISTO RIVER AND THE ASHEPOO RIVER
14-21	CONFLUENCE OF MOSQUITO CREEK AND THE ASHEPOO RIVER

Groundwater Quality

Well #	Class	Aquifer	Location
AMB-086	GB	SURFICIAL SANDS	BENNETTS POINT

All water samples collected from ambient monitoring well ***AMB-086*** met standards for Class GB groundwater.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)*	*NPDES#* *TYPE* *COMMENT*
ASHEPOO RIVER TRIBUTARY JAMES W. WILLIAMS FACILITY PIPE #: 001 FLOW: 0.004	SC0038989 MINOR DOMESTIC
ASHEPOO RIVER BOLEN POINT SD/CARGILSELL & CO. PIPE #: 001 FLOW: 0.010	SC0037788 MINOR DOMESTIC

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME *FACILITY TYPE*	*PERMIT #* *STATUS*
COLLETON COUNTY C/C LANDFILL	151001-1201 ACTIVE
COLLETON COUNTY C/C LANDFILL	CWP-045 INACTIVE

Mining Activities

MINING COMPANY *MINE NAME*	*PERMIT #* *MINERAL*
HB LIMEHOUSE AIRY HALL PEAT MINE	1152-29 PEAT

Growth Potential

There is a low potential for growth in this watershed.

03050208-050

(Coosawhatchie River)

General Description

Watershed 03050208-050 is located in Allendale and Hampton Counties and consists primarily of the ***Coosawhatchie River*** and its tributaries from its origin to Black Creek. The watershed occupies 80,545 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Rains-Bonneau-Ogeechee-Norfolk series. The erodibility of the soil (K) averages 0.14, and the slope of the terrain averages 1%, with a range of 0-6%. Land use/land cover in the watershed includes: 32.5% forested land, 36.1% agricultural land, 24.4% forested wetland, 3.8% barren land, 2.3% urban land, 0.6% nonforested wetland, and 0.3% water.

The Coosawhatchie River originates near the Towns of Allendale and Fairfax and accepts drainage from Swallow Savanna, Harters Pond, Little Duck Branch, Duck Branch, Beech Branch (Levy Bay), Blood Hill Creek, and Cedar Branch. There are a total of 74.6 stream miles and 103.1 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
CSTL-110	P	FW	COOSAWHATCHIE RIVER AT S-03-47
CSTL-540	BIO	FW	COOSAWHATCHIE RIVER AT S-03-350
CSTL-121	W	FW	COOSAWHATCHIE RIVER AT SC 363

Coosawhatchie River – There are three water quality stations along this section of the Coosawhatchie River. At the furthest upstream site ***(CSTL-110),*** aquatic life uses are partially supported due to dissolved oxygen excursions. In addition, there is a significant decreasing trend in dissolved oxygen concentration. Significant decreasing trends in five-day biochemical oxygen demand, turbidity, and total nitrogen concentrations suggest improving conditions for these parameters. Recreational uses are fully supported at this site. Further downstream ***(CSTL-540)***, aquatic life uses are fully supported based on macroinvertebrate community data. At the furthest downstream site ***(CSTL-121),*** aquatic life uses are not supported due to dissolved oxygen excursions. Recreational uses are fully supported at this site.

Groundwater Quality

Well #	Class	Aquifer	Location
AMB-051	GB	PEE DEE/BLACK CREEK	ALLENDALE
AMB-089	GB	TERTIARY LIMESTONE	FAIRFAX

All water samples collected from ambient monitoring wells ***AMB-051*** and ***AMB-089*** met standards for Class GB groundwater.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)*	*NPDES#* *TYPE* *COMMENT*
COOSAWHATCHIE RIVER TOWN OF BRUNSON PIPE #: 001 FLOW: 0.11	SC0042382 MINOR DOMESTIC

Growth Potential

There is a low potential for growth in this watershed, which contains the portions of the Towns of Allendale, Fairfax, and Brunson, and the Town of McColl. Half of Allendale County's population lives in the Towns of Allendale and Fairfax. U.S. Hwy 278 runs between the towns and is projected to support increased commercial growth. There is no indication of industrial growth, but Allendale and Fairfax are the only towns in the county with sewer systems and a rail line to support industry.

03050208-060

(Black Creek)

General Description

Watershed 03050208-060 is located in Allendale and Hampton Counties and consists primarily of ***Black Creek*** and its tributaries. The watershed occupies 40,378 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Bonneau-Rains-Norfolk-Lynchburg series. The erodibility of the soil (K) averages 0.15, and the slope of the terrain averages 1%, with a range of 0-6%. Land use/land cover in the watershed includes 42.6% agricultural land, 27.6% forested land, 22.8% forested wetland, 4.2% barren land, 1.5% urban land, 0.9% water, and 0.4% nonforested wetland.

Black Creek accepts drainage from Filly Branch, Hurricane Branch and Trowells Mill Branch before flowing through Lake George Warren (Brier Creek) and into the Coosawhatchie River. There are a total of 39.0 stream miles and 435.3 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
CL-062	W	FW	LAKE WARREN IN FOREBAY NEAR DAM
CSTL-075	S	FW	LAKE WARREN, BLACK CREEK ARM, AT S-25-41, 5MI SW OF HAMPTON

Lake George Warren - There are two monitoring sites along Lake Warren. In the Black Creek area of the lake ***(CSTL-075)***, aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although dissolved oxygen and pH excursions occurred, they were typical of values seen in blackwater systems and are considered natural, not standards violations. There is a significant increasing trend in pH. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are fully supported at this site. At the downlake site ***(CL-062),*** aquatic life and recreational uses are fully supported. Although dissolved oxygen and fecal coliform bacteria excursions occurred, due to the small number of samples, uses are considered to be fully supported at this site.

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME *FACILITY TYPE*	*PERMIT #* *STATUS*
HAMPTON COUNTY LF, PHASE I,II,III DOMESTIC	251001-1101 INACTIVE
HAMPTON COUNTY LF, PHASE II DOMESTIC	DWP-119, DWP-006, DWP-104 INACTIVE
HAMPTON COUNTY C&D LANDFILL C & D	251001-1201 ACTIVE

HAMPTON COUNTY C&D LANDFILL	CWP-046
C & D	INACTIVE

Land Application Sites

LAND APPLICATION SYSTEM	***ND#***
FACILITY NAME	***TYPE***
SPRAYFIELD	ND0069701
TOWN OF ESTILL	DOMESTIC

Mining Activities

MINING COMPANY	***PERMIT #***
MINE NAME	***MINERAL***
J.R. CONSTRUCTION COMPANY	1028-49
J.R. WILSON CONSTRUCTION	SAND, SAND/CLAY

Growth Potential

There is a low potential for growth in this watershed, which contains the Towns of Luray and Estill. Slight growth is projected associated with the Federal Correctional Institution.

03050208-070

(Coosawhatchie River)

General Description

Watershed 03050208-070 is located in Hampton and Jasper Counties and consists primarily of the ***Coosawhatchie River*** and its tributaries from Black Creek to its confluence with the Pocotaligo River to form the Broad River. The watershed occupies 139,753 acres of the Lower Coastal Plain and Coastal Zone regions of South Carolina. The predominant soil types consist of an association of the Albany-Rains-Lynchburg-Goldsboro-Pelham series. The erodibility of the soil (K) averages 0.15, and the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 46.0% forested land, 24.3% forested wetland, 18.4% agricultural land, 4.6% barren land, 3.2% nonforested wetland, 2.0% urban land, and 1.5% water.

Downstream of Black Creek, the Coosawhatchie River accepts drainage from Horse Pond, Mill Creek, Sanders Branch (House Fork), Camp Branch, Cowpen Branch, Horsegall Creek, Lowndes Lake, McPherson Creek, Broadway Branch, Big Branch, and the Cypress Creek Watershed. Downstream of Cypress Creek, the river accepts drainage from Early Branch, the Tulifiny River (Buckfield Backwater), Bay Swamp, Little Bees Creek, and Bees Creek (Captain Bills Creek) before merging with the Pocotaligo River to form the Broad River. The Tulifiny River connects with the Coosawhatchie River upstream of Bay Swamp and downstream of Bees Creek. Buckfield Backwater connects the Tulifiny River to the Pocotaligo River. There are a total of 149.5 stream miles, 194.0 acres of lake waters, and 1,041.9 estuarine acres in this watershed. The Coosawhatchie River and its tributaries, with the exception of Sanders Branch and Bees Creek are classified FW above the saltwater intrusion and SFH below the intrusion (in the vicinity of U.S. Hwy 17). Sanders Branch is classified FW* (DO no less than 4 mg/l and pH 5.0-8.5) and Bees Creek is classified SB.

Surface Water Quality

Station #	Type	Class	Description
CSTL-108	S	FW*	SANDERS BRANCH AT SC 363
CSTL-010	S	FW*	SANDERS BRANCH AT SC 278
CSTL-011	S/BIO	FW*	SANDERS BRANCH AT S-25-50
CSTL-109	P	FW	COOSAWHATCHIE RIVER AT S-25-27, 2.5MI SW OF CUMMINGS
CSTL-107	P	FW/SFH	COOSAWHATCHIE RIVER AT US 17 AT COOSAWHATCHIE
MD-128	S	SB	BEES CREEK AT SC 462, 5.9MI NE OF RIDGELAND

Sanders Branch – There are three monitoring stations along Sanders Branch and there is a significant increasing trend in pH **at all sites**. At the furthest upstream site ***(CSTL-108),*** aquatic life uses are fully supported. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are not supported due to fecal coliform bacteria excursions. Further downstream ***(CSTL-010),*** aquatic life uses are fully supported. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are partially supported due to fecal coliform bacteria excursions. At the furthest downstream site ***(CSTL-011),*** aquatic life uses are partially supported based on macroinvertebrate

community data and dissolved oxygen excursions. A significant increasing trend in dissolved oxygen concentration and a significant decreasing trend in five-day biochemical oxygen demand suggest improving conditions for these parameters. Recreational uses are not supported due to fecal coliform bacteria excursions.

Coosawhatchie River – There are two monitoring sites along this section of the Coosawhatchie River. Aquatic life uses are not supported at the upstream site ***(CSTL-109),*** due to dissolved oxygen and pH excursions, compounded by a significant decreasing trend in dissolved oxygen concentration. There is a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand, turbidity, total phosphorus concentration, total nitrogen concentration, and total suspended solids suggest improving conditions for these parameters. In sediment, a high concentration of zinc was measured in the 1996 sample, and very high concentrations of zinc were measured in the 1998 and 1999 samples. A very high concentration of lead was measured in the 1997 sediment sample. The PAHs chrysene, fluoranthene, phenanthrene, pyrene, and benzo[a]anthracene were detected in the 1997 sediment sample and dibutyl phthalate was detected in the 1999 sample. Recreational uses are fully supported, and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

The downstream site ***(CSTL-107)*** is located in an area that is transitional between fresh and salt waters. Aquatic life uses are fully supported under both freshwater and saltwater criteria. Although dissolved oxygen excursions were noted under both freshwater and saltwater criteria and pH excursions were noted under saltwater criteria, they were typical of values seen in such transitional areas and are considered natural, not standards violations. There is a significant decreasing trend in dissolved oxygen concentration and significant increasing trends in pH and turbidity. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Bees Creek (MD-128) – Aquatic life uses are partially supported due to dissolved oxygen and pH excursions, compounded by a significant decreasing trend in dissolved oxygen. This is a secondary monitoring station and sampling is intentionally biased towards periods with the potential for low dissolved oxygen concentrations. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are partially supported due to fecal coliform bacteria excursions.

A fish consumption advisory has been issued by the Department for mercury and includes the Coosawhatchie River within this watershed (see advisory p.58).

Groundwater Quality

Well #	Class	Aquifer	Location
AMB-098	GB	TERTIARY LIMESTONE	RIDGELAND

All water samples collected from ambient monitoring well ***AMB-098*** met standards for Class GB groundwater.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM / ***FACILITY NAME*** / ***PERMITTED FLOW @ PIPE (MGD)***	***NPDES#*** / ***TYPE*** / ***COMMENT***
COOSAWHATCHIE RIVER GA PACIFIC/VARNVILLE SAWMILL PIPE #: 001 FLOW: M/R	SCG250051 MINOR INDUSTRIAL
SANDERS BRANCH TOWN OF HAMPTON PIPE #: 001 FLOW: 2.0	SC0021318 MAJOR DOMESTIC
SANDERS BRANCH NEVAMAR COMPANY, LLC PIPE #: 001 FLOW: 1.5	SC0001830 MAJOR INDUSTRIAL
SANDERS BRANCH CARSONITE INTERNATIONAL INC. PIPE #: 001 FLOW: 0.5	SCG250095 MINOR INDUSTRIAL
CAPTAIN BILLS CREEK TOWN OF RIDGELAND PIPE #: 001 FLOW: 0.25	SC0047929 MINOR DOMESTIC
LITTLE BEES CREEK COOSAWHATCHIE LAND COMPANY, LLC PIPE #: 001 FLOW: 0.01	SC0035394 MINOR DOMESTIC
LITTLE BEES CREEK TRIBUTARY STUCKEYS PECAN SHOPPE #083 PIPE #: 001 FLOW: 0.005	SC0034550 MINOR DOMESTIC

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME / ***FACILITY TYPE***	***PERMIT #*** / ***STATUS***
TOWN OF RIDGELAND DUMP DOMESTIC	---------- INACTIVE
TOWN OF RIDGELAND DUMP #3 DOMESTIC	---------- INACTIVE

Mining Activities

MINING COMPANY / ***MINE NAME***	***PERMIT #*** / ***MINERAL***
PALMETTO CONSTRUCTION COMPANY 211 MINE	1233-53 SAND/CLAY

Growth Potential

There is a low to moderate potential for growth in this watershed, which contains the Town of Varnville and a portion of the Town of Ridgeland. There is a high potential for residential growth in the Ridgeland area. Ridgeland has expanded its regional treatment facility, which was built to address the needs of Del Webb's Sun City and Hilton Head. I-95 crosses the Town of Ridgeland and may provide some growth to the area.

03050208-080

(Cypress Creek)

General Description

Watershed 03050208-080 is located in Hampton and Jasper Counties and consists primarily of the ***Cypress Creek*** and its tributaries. The watershed occupies 54,060 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Albany-Pelham-Ocilla-Chipley series. The erodibility of the soil (K) averages 0.13, and the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 44.2% forested land, 27.6% agricultural land, 22.6% forested wetland, 4.7% barren land, 0.5% nonforested wetland, 0.3% water, and 0.1% urban land.

Cypress Creek originates near the Town of Furman and accepts drainage from Cane Gall, Johns Pen Creek (Zigzag Branch) and Beaverdam Branch before flowing into the Coosawhatchie River. There are a total of 29.5 stream miles and 6.9 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
CSTL-582	BIO	FW	CYPRESS CREEK AT SC 3
CSTL-122	W	FW	CYPRESS CREEK AT S-27-108

Cypress Creek – There are two monitoring sites along Cypress Creek. Aquatic life uses are fully supported at the upstream site ***(CSTL-582)*** based on macroinvertebrate community data. At the downstream site ***(CSTL-122),*** aquatic life uses are also fully supported. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although dissolved oxygen and pH excursions occurred, they were typical of values seen in blackwater systems and are considered natural, not standards violations. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Groundwater Quality

Well #	Class	Aquifer	Location
AMB-099	GB	TERTIARY LIMESTONE	GRAYS
AMB-114	GB	TERTIARY LIMESTONE	WSBH RADIO

All water samples collected from ambient monitoring wells ***AMB-099*** and ***AMB-144*** met standards for Class GB groundwater.

Growth Potential

There is a low potential for growth in this watershed, which contains a portion of the Town of Furman.

03050208-090

(Broad River/Port Royal Sound)

General Description

Watershed 03050208-090 is located in Beaufort and Jasper Counties and consists primarily of the ***Broad River*** and ***Port Royal Sound*** and their tributaries, which include the ***Chechessee River*** and the ***Beaufort River***. The watershed occupies 267,241 acres of the Coastal Zone region of South Carolina. The predominant soil types consist of an association of the Bohicket-Argent-Okeetee-Coosaw-Albany series. The erodibility of the soil (K) averages 0.13, and the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 34.5% water, 31.4% forested land, 14.0% forested wetland, 7.2% nonforested wetland, 6.6% agricultural land, 3.9% urban land, and 2.4% barren land.

The Coosawhatchie River Watershed and the Pocotaligo River (Buckfield Backwater, Haulover Creek) join to form the Broad River. Downstream from the confluence, the Broad River accepts drainage from South Haulover Creek and Whale Branch (Big Island Creek, Huspa Creek). Whale Branch connects the Broad River to the Coosaw River. Downstream from Whale Branch, the river accepts drainage from Boyd Creek (West Branch Boyd Creek, East Branch Boyd Creek, Coles Creek, Big Pond, Middle Pond, River Pond), Habersham Creek, Euhaw Creek (White Hall Pond, Gregory Pond, Hazzard Creek, Bird Island Creek), Archers Creek, Ribbon Creek, and Ballast Creek before flowing into Port Royal Sound. Archers Creek and Ballast Creek connect the Broad River to the Beaufort River.

Hazzard Creek (Whig Swamp, Sandy Hill Backwater) drains into both Euhaw Creek and the Chechessee River. The Chechessee River also accepts drainage from Checheessee Creek and the Colleton River (Okatie River, Callawassie Creek) before flowing into Port Royal Sound. Mackay Creek (Skull Creek) connects Port Royal Sound to Calibogue Sound.

Brickyard Creek (Mulligan Creek) and Albergottie Creek (Salt Creek) join to form the Beaufort River, which accepts drainage from Pigeon Point Creek, Broomfield Creek, Factory Creek, Battery Creek, and Cowen Creek (Distant Island Creek, Capers Creek). Cowen Creek is also described as Chowan Creek, and Capers Creek is also known as Wallace Creek. Cat Island Creek connects the Beaufort River to Cowen Creek. Archers Creek and Ballast Creek connect the Beaufort River to the Broad River. Streams draining directly into Port Royal Sound include Mackay Creek, Skull Creek, Park Creek, Coggin Creek, Station Creek, and Morse Island Creek. There are a total of 19.8 stream miles, 364.0 acres of lake waters, and 55,772.1 estuarine acres in this watershed.

The Broad River and its tributaries are classified SFH, as is Port Royal Sound. The Beaufort River and its tributaries from the confluence of Albergottie Creek and Brickyard Creek (SFH) to a point between Battery Creek and Cat Island Creek are classified SA; and from that point to its confluence with Port Royal Sound they are classified SFH. The Chechessee River and its tributaries, except for the Colleton River, are classified SFH. The Colleton River and its tributaries including the Okatie River are classified ORW.

Surface Water Quality

Station #	Type	Class	Description
MD-007	P	SFH	Pocotaligo River at US 17 at Pocotaligo
MD-116	P	SFH	Broad River at SC 170, 7.5mi SW of Beaufort
MD-172	S	SFH	Broad River at mouth of Archer Creek on SW side of USMC
MD-117	S	SFH	Chechessee River at SC 170, 10.5mi SW of Beaufort
MD-176	W	ORW	Colleton River at Colleton Neck at jct with Chechessee River
MD-245	P	ORW	Colleton River near mouth (shellfish station 18-5)
MD-006	S	SFH	Port Royal between buoy 25&24, W of Bay Point Island
MD-001	S	SA	Beaufort River above Beaufort at channel marker 231
MD-002	S	SA	Beaufort River at drawbridge on US 21
MD-003	P	SA	Beaufort River below Beaufort at channel marker 244
MD-004	S	SFH	Beaufort River at junction with Battery Creek near marker 42
MD-005	P	SFH	Beaufort River below outfall of Parris Is. Marine Base at buoy 29
MD-013	S	SFH	mouth of Skull Creek between channel markers 3 & 4 near Redbo

Pocotaligo River (MD-007) **–** Aquatic life uses are not supported due to turbidity excursions. This is a tidally influenced system, which are often characterized by naturally low dissolved oxygen concentrations. Although dissolved oxygen excursions were noted, they were typical of values seen in such systems and are considered natural, not standards violations. There is a significant decreasing trend in dissolved oxygen concentration and a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand, turbidity, and total nitrogen concentrations suggest improving conditions for these parameters. A high concentration of lead was measured in the 1997 sediment sample, and a very high concentration of lead was measured in the 1998 sample. Both of these values exceeded the ERL value for lead but not the ERM value. Recreational uses are not supported due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Broad River **–** There are two monitoring sites along the Broad River. At the upstream site ***(MD-116)***, aquatic life and recreational uses are fully supported. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentrations suggest improving conditions for these parameters. At the downstream site ***(MD-172),*** aquatic life uses are partially supported due to dissolved oxygen excursions. In addition, there is a significant decreasing trend in dissolved oxygen concentration. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are fully supported.

Chechessee River (MD-117) **–** Aquatic life uses are not supported due to dissolved oxygen excursions. In addition, there is a significant decreasing trend in dissolved oxygen concentrations and a significant increasing trend in turbidity. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are fully supported.

Colleton River **–** There are two monitoring stations along the Colleton River. Aquatic life uses are fully supported at the upstream site ***(MD-176).*** This is a tidally influenced system with marsh drainage, which

are often characterized by naturally low dissolved oxygen concentrations. Although dissolved oxygen excursions were noted, they were typical of values seen in such systems and are considered natural, not standards violations. There is a significant decreasing trend in dissolved oxygen concentration. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Aquatic life uses are also fully supported at the downstream site ***(MD-245)***. There is a significant decreasing trend in dissolved oxygen concentration. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Beaufort River - There are five monitoring sites along the Beaufort River. Aquatic life uses are not supported at the furthest upstream site ***(MD-001)*** due to dissolved oxygen excursions. This is compounded by a significant decreasing trend in dissolved oxygen concentration. There is a significant decreasing trend in pH. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are fully supported at this site.

At the next site downstream ***(MD-002),*** aquatic life uses are not supported due to dissolved oxygen excursions. There is a significant decreasing trend in pH. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are fully supported at this site.

Further downstream ***(MD-003)***, aquatic life uses are not supported due to dissolved oxygen excursions and there is a significant increasing trend in turbidity. There is a significant decreasing trend in pH. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are fully supported at this site.

At the next downstream site ***(MD-004)***, aquatic life uses are not supported due to dissolved oxygen excursions. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are fully supported at this site.

Aquatic life uses are fully supported at the furthest downstream site ***(MD-005)***. There is a significant decreasing trend in pH. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Skull Creek (MD-013) – Aquatic life uses are fully supported. This is a tidally influenced system with marsh drainage, which are often characterized by naturally low dissolved oxygen concentrations. Although dissolved oxygen excursions were noted, they were typical of values seen in such systems and are considered natural, not standards violations. Also, this is a secondary monitoring station and sampling is intentionally biased towards periods with the potential for low dissolved oxygen concentrations. There is a significant decreasing trend in pH. A significant decreasing trend in five-day

biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are fully supported.

***Port Royal Sound (MD-006)* –** Aquatic life uses are fully supported. There is a significant decreasing trend in pH. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

A fish consumption advisory has been issued by the Department for mercury and includes the Coosawhatchie River within this watershed (see advisory p.58).

Shellfish Monitoring Stations

Station #	Description
14-14	Huspa Creek at railroad trestle
14-18	Huspa Creek at Bull Point- Whale Branch Pog
15-10	Battery Creek at Five Points Creek
15-14	Parris Island at WWTP outfall
15-15	Ballast Creek at Beaufort River
15-16	Station Creek at Beaufort River
15-17	Cat Island Creek at Cowen Creek
15-18	Second Middle Marsh in Cowen Creek
15-19	Battery Creek 1000 feet below Rabbit Island
15-20	Capers Creek SSG at Penn Community Services Retreat Center
15-21	Unnamed creek at (former) discharge of BC High and Cherry Hill High
15-23	Distant Island State Shellfish Ground
15-24	Battery Creek – SC Hwy 280 bridge
15-25	Battery Creek – Dowlingwood tributary
15-26	Battery Creek – Picket Fence tributary
15-27	Battery Creek – Cherry Hill tributary
15-28	Battery Creek – storm water outfall under RR track
15-29	Battery Creek – Tributary on right side before Battery Shores
15-30	Battery Creek – Cottage Farms Community Dock
15-31	Battery Creek – Battery Point Community Dock
15-32	Battery Creek – under power line
17-01	Broad River at S.A.L. RR bridge
17-02	Boyd Creek at Broad River
17-03	Broad River at Whale Branch
17-04A	USMC Laurel Bay WWTP Output
17-07	Mouth of Chechessee Creek at Chechessee River
17-08	Chechessee River bridge
17-09	Mouth of Euhaw Creek at Hazzard Creek
17-10A	Archers Creek 1000 feet west of bridge
Station #	**Description**
17-12A	Ballast Creek near Page Field Road Causeway
17-13	Broad River at creek below Ballast Creek
17-14	Broad River at Parris Island spit
17-16	Broad River at Corn Island – mouth of creek
17-16A	First split in Habersham Creek above station #16
17-17	Hazzard Creek at Chechessee River

17-18	HAZZARD CREEK AT CHELSEA PLANTATION CLUBHOUSE
17-21	CONFLUENCE OF MIDDLE CREEK AND WHALE BRANCH
17-22	CONFLUENCE OF EAST AND WEST BRANCH OF BOYD CREEK
17-23	HEADWATERS OF EUHAW CREEK ONE MILE ABOVE BOLIN HALL LANDING
18-01	OKATIE RIVER AT CAMP ST. MARY'S DOCK
18-02	OKATIE RIVER BEHIND BAILEY'S OYSTER DOCK
18-03	CHECHESSEE CREEK AT OKATIE RIVER
18-04	CALLAWASSIE CREEK AT COLLETON RIVER, MOUTH OF CREEK
18-05	CALLAWASSIE CREEK AT COLLETON CREEK AT TREE LINE
18-06	SAWMILL CREEK AT COLLETON CREEK
18-07	OKATIE RIVER AT INDIGO PLANTATION
18-08	OKATIE RIVER AT DOCK WITHOUT HOUSE
18-09	FIRST UNNAMED TRIBUTARY IN CHECHESSEE CREEK FROM COLLETON RIVER
18-10	SECOND BRIDGE TO CALLAWASSIE ISLAND
18-11	FIRST BRIDGE TO CALLAWASSIE ISLAND
18-12	SERIES OF UNNAMED TRIBUTARIES IN CHECHESSEE CREEK
18-13	FIRST UNNAMED TRIBUTARY TO CHECHESSEE POINT IN CHECHESSEE CREEK
18-14	TRIBUTARY FROM SPRING ISLAND SHRIMP POND
18-15	DOCK AT WADDELL MARICULTURE CENTER
18-16	OKATIE RIVER AT CONFLUENCE OF PINKNEY COLONY TRIBUTARY
18-17	OKATIE RIVER AT CONFLUENCE OF CHERRY POINT TRIBUTARY
20-09	MACKEY CREEK AND CHECHESSEE RIVER
20-13	SKULL CREEK AND PORT ROYAL SOUND
20-21	FISH HAUL CREEK AT PORT ROYAL SOUND

Groundwater Quality

Well #	Class	Aquifer	Location
AMB-029	GB	MIDDENDORF	PARRIS ISLAND
AMB-091	GB	TERTIARY LIMESTONE	SHELDON
AMB-093	GB	TERTIARY LIMESTONE	BLUFFTON

All water samples collected from ambient monitoring wells ***AMB-029, AMB-091,*** and ***AMB-093*** met standards for Class GB groundwater.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)***	***NPDES#*** ***TYPE*** ***COMMENT***
BROAD RIVER USMC/MARINE CORPS AIR STATION PIPE #: 002 FLOW: 0.75	SC0000825 MINOR INDUSTRIAL
HUSPA CREEK BRAYS ISLAND PLANTATION WWTP PIPE #: 001 FLOW: 0.059	SC0047228 MINOR DOMESTIC WETLAND

BEAUFORT RIVER BJW&SA/ST. HELENA WWTP PIPE #: 002 FLOW: 1.2	SC0039811 MINOR DOMESTIC UNCONSTRUCTED
BEAUFORT RIVER BJW&SA/SHELL POINT WWTP PIPE #: 001 FLOW: 0.4 (TIER I) PIPE #: 001 FLOW: 0.532 (TIER II) PIPE #: 001 FLOW: 0.8 (TIER III)	SC0042609 MINOR DOMESTIC
BEAUFORT RIVER BJW&SA/SOUTHSIDE WWTP PIPE #: 001 FLOW: 0.4 (TIER I) PIPE #: 001 FLOW: 0.532 (TIER II)	SC0021016 MAJOR DOMESTIC
BEAUFORT RIVER US MARINES/PARRIS IS. DEPOT PIPE #: 001 FLOW: 3.0 PIPE #: 003 FLOW: M/R	SC0002577 MINOR INDUSTRIAL
ALBERGOTTI CREEK US MARINES/BEAUFORT AIR STATION PIPE #: 001 FLOW: 0.75	SC0000825 MINOR INDUSTRIAL
BATTERY CREEK OC WELCH FORD & LINCOLN MERCURY PIPE #: 001 FLOW: M/R	SCG750015 MINOR INDUSTRIAL
WWTP PRIOR TO DISPOSAL HILTON HEAD NO.1 PSD WWTP PIPE #: 001 FLOW: 3.35	SC0046191 MAJOR DOMESTIC WETLAND
PALMETTO HALL WETLANDS HILTON HEAD NO.1 PSD WWTP PIPE #: 002 FLOW: 0.20	SC0046191 MAJOR DOMESTIC WETLAND
PALMETTO HALL PLANTATION WETLANDS HILTON HEAD NO.1 PSD WWTP PIPE #: 003 FLOW: 0.65	SC0046191 MAJOR DOMESTIC WETLAND
DEL WEBB WETLAND BJW&SA/OKATIE WATER RECLAIM. FACILITY PIPE #: 003a FLOW: 0.3963 PIPE #: 003b FLOW: 0.1189	SC0047279 MAJOR DOMESTIC

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
HICKORY HILL LANDFILL & RECYCLING CTR DOMESTIC	272401-1101 ACTIVE
HICKORY HILL LANDFILL & RECYCLING CTR DOMESTIC	272401-1102 (DWP-112) INACTIVE

HICKORY HILL LANDFILL & RECYCLING CTR INDUSTRIAL	IWP-197, IWP-168 INACTIVE
TOWN OF RIDGELAND DUMP #2 DOMESTIC	---------- INACTIVE
US MARINE CORP. RECRUITING DOMESTIC	DWP-909, DWP-905, CWP-020 INACTIVE
BEAUFORT COUNTY LANDFILL DOMESTIC	DWP-007, DWP-063 INACTIVE
OAKWOOD RECYCLING DOMESTIC	272438-1201 (CWP-037) INACTIVE
GREENFIELD C&D LANDFILL C & D	---------- INACTIVE
BARNWELL RESOURCES, BEAUFORT INDUSTRIAL	IWP-233, CWP-006 INACTIVE
BARNWELL RESOURCES, BEAUFORT C & D	072410-1201 ACTIVE

Land Application Sites

LAND APPLICATION SYSTEM ***FACILITY NAME***	***ND#*** ***TYPE***
SPRAYFIELD BJW&SA/POINT SOUTH WWTP	ND0068781 DOMESTIC
SPRAYSITES BJW&SA/PALM KEY WWTP	ND0064513 DOMESTIC
GOLF COURSE CALLAWASSIE DEVELOPMENT	ND0062235 DOMESTIC
SPRAYSITE BEACHWOOD MHP	ND0067091 DOMESTIC
GOLF COURSE TJ BARNWELL UTILITIES, INC.	ND0067393 DOMESTIC
GOLF COURSE AND SPRAYSITES HILTON HEAD #1 PSD	ND0068462 DOMESTIC
GOLF COURSE SPRING ISLAND CO./SPRING IS. WWTP	ND0077828 DOMESTIC

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
BEAUFORT COUNTY PUBLIC WORKS CLARENDON FARMS	1236-13 SAND/CLAY

NATHAN WILSON EARLY BRANCH MINE	1352-49 SAND/SANDCLAY
CLELAND CONSTRUCTION COMPANY SHILOH MINE	1137-13 SAND/CLAY
BARNWELL RESOURCES, INC. BARNWELL RESOURCES MINE	0857-13 SAND/CLAY
BLANKENSHIP CONSTRUCTION BLANKENSHIP MINE	1190-13 SAND/CLAY
RIVERS EDGE CO. HONEY HILL	1346-53 SAND/SANDCLAY
OKEETEE CLUB INC. MINE #4-A	0078-53 SAND
MALPHRUS CONSTRUCTION COMPANY, INC. MALPHRUS	1141-53 SAND
CLELAND CONSTRUCTION COMPANY CLELAND – D.R. MINE	1108-13 SAND
ABLE CONTRACTING INC. CRANE MINE	1225-13 SAND/CLAY
MALPHRUS CONSTRUCTION COMPANY, INC. SCHULTZ MINE	1234-13 SAND/CLAY
ULMER BROTHERS, INC. HUNTING ISLAND FARM PONDS	1348-13 SAND/SANDCLAY

Growth Potential

There is a high potential for growth in this watershed, which contains portions of the City of Beaufort and the Towns of Yemassee, Bluffton, and Hilton Head. The City of Beaufort and the Towns of Lady's Island, Burton, and Shell Point are projected to continue experiencing residential and commercial growth. Less than 25% of the total land area of Lady's Island, Burton or Shell Point is suitable for septic system installations; and another 25% or less is classified as marginally suitable.

The Town of Bluffton is an unincorporated area experiencing substantial growth. Del Webb's Sun City retirement community development near Bluffton has added tremendous residential and commercial growth to the area. Between 25 and 50% of the total land area is suitable for septic system installations; and another 25% or less is classified as marginally suitable. Beaufort-Jasper Water and Sewer Authority has extended water and sewer services to the area to provide for the growth. They were then able to extend the services over to Hilton Head, where the natural aquifer is becoming shallow and salty. The area along U.S. Highway 278 en route from Bluffton to Hilton Head is a high growth commercial corridor. There are numerous golf and/or residential developments, and plans to develop nearby areas in a similar fashion. The new toll road that by-passes a portion of U.S. Highway 278 diverts the heavy commercial tourism traffic to more residential areas and the beaches. Calawassie Island on the

Colleton River is currently being developed and plans to build a bridge over to Spring Island have been discussed, which would increase the island's residential development potential.

Watershed Protection and Restoration Strategies

Total Maximum Daily Loads (TMDLs)

In order to establish a TMDL for oxygen demanding substances in the Beaufort River, the Beaufort Jasper Water and Sewer Authority (BJWSA) has initiated and directed the development of a dynamic water quality model for SCDHEC to use in determining the assimilitative capacity of the river. As a result, an Artificial Neural Network model (ANN) was developed by a project team composed of scientists and engineers from Jordan, Jones & Goulding (JJG), Advanced Data Mining (ADMi), and the U.S. Geological Survey (USGS). The model encompasses the Beaufort River from Brickyard Creek to its confluence with the Broad River. Modeling data (water level, water temperature, specific conductance, dissolved oxygen concentration) were collected from December 1998 to September 2001 by USGS. The Department plans on using the model to determine the TMDL and point source wasteload allocations for discharges to the Beaufort River. These discharges include Southside, Shell Point, U.S. Marine Corps. Air Station, and Parris Island wastewater treatment plants.

03050208-100

(Coosaw River/St. Helena Sound)

General Description

Watershed 03050208-100 extends through Beaufort and Colleton Counties and consists primarily of the ***Coosaw River*** and ***St. Helena Sound*** and their tributaries, which include the ***Bull River***, the ***Morgan River*** and the ***Harbor River***. The watershed occupies 170,724 acres of the Coastal Zone region of South Carolina. The predominant soil types consist of an association of the Bohicket-Capers-Lynnhaven-Lakeland series. The erodibility of the soil (K) averages 0.08, and the slope of the terrain averages 2%, with a range of 0-6%. Land use/land cover in the watershed includes: 49.8% water, 20.3% forested land, 14.6% nonforested wetland, 5.7% agricultural land, 4.0% forested wetland, 2.9% urban land, and 2.7% barren land.

Whale Branch (Campbell Creek, Halfmoon Creek), McCalleys Creek, and Brickyard Creek join together to form the Coosaw River. Downstream from the confluence, the Coosaw River accepts drainage from Broomfield Creek, Lucy Point Creek (Rock Spring Creek), Parrot Creek (Bass Creek, Duck Pond Creek), the Bull River, the Combahee River Watershed, and Morgan Back Creeks before flowing into St. Helena Sound. The Bull River is formed by the confluence of Wimbee Creek (South Wimbee Creek, Barnwell Creek, Briars Creek, True Blue Creek, Branford Creek) and Williman Creek. Schooner Channel connects Wimbee Creek and Williman Creek. All of these streams are classified SFH.

Brickyard Creek and Broomfield Creek connect the Coosaw River to the Beaufort River (03050208-090), and Lucy Point Creek and Parrot Creek connect the Coosaw River to the Morgan River. Jenkins Creek (Doe Point Creek) and Lucy Point Creek form the Morgan River, which accepts drainage from Boatswain Pond Creek, Parrot Creek, Eddings Point Creek, Village Creek (Pine Island Creek), and Coffin Creek before flowing into St. Helena Sound. All of these streams are classified SFH.

The Harbor River (Club Bridge Creek, Johnson Creek, Ward Creek) connects Trenchards Inlet (Turtle Creek, Moon Creek, Station Creek, Scott Creek, Skull Creek, Skull Inlet, Story River) and Fripp Inlet (Old House Creek) to St. Helena Sound. The Story River connects Trenchards Inlet to Fripp Inlet. There are a total of 228.9 acres of lake waters and 44,747.3 estuarine acres in this watershed. The Harbor River, Johnson Creek, and Fripps Inlet are classified ORW and the remaining streams are classified SFH.

Surface Water Quality

Station #	Type	Class	Description
MD-194	S	SFH	WHALE BRANCH AT JUNCTION WITH CAMPBELL CREEK, ¾ MI W OF MD-010
MD-168	P	SFH	COOSAW RIVER AT CONFLUENCE OF COMBAHEE RIVER, NEAR BUOY 186

Whale Branch (MD-194) – Aquatic life uses are not supported due to dissolved oxygen excursions. There is a significant decreasing trend in pH. In sediment, butyl benzyl phthalate was detected in the 1996 sample. P,P' DDE was detected in the 1998 sediment sample in excess of the ERL value, but less than the ERM value. Recreational uses are fully supported.

Coosaw River (MD-168) **–** Aquatic life uses are fully supported. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. Recreational uses are fully supported, and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Shellfish Monitoring Stations

Station #	Description
14-02	CAMPBELL CREEK AT WHALE BRANCH
14-04	BULL RIVER INLET AND COOSAW RIVER
14-08	ASHEPOO RIVER AT ST. HELENA SOUND – BLACK CAN BUOY
14-09	ST. HELENA SOUND AT MORGAN BACK CREEK
14-10	PARROT CREEK AND COOSAW RIVER, MARKER #1
14-11	SAM'S POINT AND COOSAW RIVER
14-12A	CONFLUENCE OF COOSAW RIVER AND WHALE BRANCH
14-13	HALFMOON CREEK AT WHALE BRANCH
14-16A	2000 FT SOUTHEAST OF MOUTH OF FISH CREEK
15-01	BRICKYARD CREEK AT RANGE MARKER
15-01A	MCCALLEYS CREEK AT PAWKIE ISLAND
16A-08	MORGAN RIVER AT VILLAGE CREEK
16A-09	EDDING CREEK AT MORGAN RIVER
16A-10	PARROT CREEK AT MORGAN RIVER
16A-11	JENKINS CREEK AT MORGAN RIVER
16A-13	LUCY POINT CREEK AT MORGAN RIVER
16A-13A	S. EDGE OF LUCY POINT CREEK CSZ AT POLLUTION LINE
16A-13B	N. EDGE OF LUCY POINT CREEK CSZ AT POLLUTION LINE
16A-14	DOE CREEK BEHIND COASTAL SEAFOOD AND DATAW ISLAND
16A-18	EDDING CREEK AT SHRIMP DOCK
16A-19	UPPER REACHES ROCK SPRINGS CREEK
16A-23	EDDINGS CREEK AT TRIBUTARY BETWEEN STATIONS 9 AND 18
16A-24	JENKINS CREEK AT TURN BETWEEN STATIONS 11 AND 14
16A-25	JENKINS CREEK AT TRIBUTARY NORTH OF WARSAW ISLAND
16A-27	MOUTH OF COFFIN CREEK AT MORGAN RIVER
16A-28	HEADWATERS OF COFFIN CREEK AT SHRIMP DOCKS
16A-30	500FT NORTH OF STORMWATER OUTFLOW AT DATAW ISLAND GOLF COURSE
16A-32	VILLAGE CREEK AT FRIPP POINT COMMUNITY DOCK
16B-02	TRENCHARDS INLET AT MOUTH OF STATION CREEK
16B-03	CLUB BRIDGE CREEK AT HARBOR RIVER SOUND
16B-04	STORY RIVER AT FRIPP ISLAND
16B-05	OLD HOUSE CREEK AT FRIPP ISLAND
16B-06	HARBOR RIVER AT MARKER #A13
16B-06F	UNNAMED CREEK IN FRIPP CANAL AT OLD HOUSE CREEK
16B-17	STATION CREEK SSG AT BEAUFORT COUNTY LANDING
Station #	**Description**
16B-20	TWO MILES NORTH OF CONFLUENCE OF STORY RIVER AND TRENCHARDS INLET
16B-21	UNNAMED CREEK BETWEEN HARBOR RIVER AND STORY RIVER
16B-22	SKULL CREEK AT CONFLUENCE WITH CREEK TOWARD PRICHARDS INLET
16B-26	OLD HOUSE CREEK AT 2 TRIBUTARIES NW OF FRIPP ISLAND MARINA
16B-29	MIDWAY STATIONS 3 AND 6 AT CREEK BETWEEN STORY RIVER AND HARBOR RIVER
16B-31	JOHNSON CREEK AT SC HWY 21 BRIDGE
16B-33	SKULL CREEK AT CONFLUENCE WITH TRENCHARDS INLET

16B-34 TRENCHARDS EST.INLET AT CONFLUENCE WITH LARGE TRIBUTARY ON NW SIDE OF SKULL CREEK
16B-35 Skull Creek at confluence with first major creek on right heading inland from Skull Inlet

Groundwater Quality

Well #	Class	Aquifer	Location
AMB-090	GB	TERTIARY LIMESTONE	FROGMORE

All water samples collected from ambient monitoring well ***AMB-090*** met standards for Class GB groundwater.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)*	*NPDES#* *TYPE* *COMMENT*
HALFMOON CREEK JAMES J. DAVIS ELEM. SCHOOL PIPE #: 001 FLOW: 0.008	SC0027481 MINOR DOMESTIC
CAMPBELL CREEK TO WHALE BRANCH NUFARM SPECIALTY PRODUCTS, INC. PIPE #: 001 FLOW: 0.353	SC0000914 MAJOR INDUSTRIAL
MCCALLEYS CREEK SPRINGS INDUSTRIES/WAMCHEM NPL SITE PIPE #: 001 FLOW: M/R	SC0046701 MINOR INDUSTRIAL
AT WWTP PRIOR TO DISPOSAL BJW&SA/ST. HELENA WWTP PIPE #: 001 FLOW: M/R	SC0039811 MINOR DOMESTIC
COTTON DYKE GOLF COURSE BJW&SA/ST. HELENA WWTP PIPE #: 003 FLOW: 0.48	SC0039811 MINOR DOMESTIC
MORGAN RIVER GOLF COURSE BJW&SA/ST. HELENA WWTP PIPE #: 004 FLOW: 0.4	SC0039811 MINOR DOMESTIC
HENRY'S SOD FARM BJW&SA/ST. HELENA WWTP PIPE #: 005 FLOW: 0.2475	SC0039811 MINOR DOMESTIC

Nonpoint Source Management Program

Land Disposal Activities

Land Application Sites

LAND APPLICATION SYSTEM *FACILITY NAME*	*ND#* *TYPE*
SPRAYFIELD FRIPP ISLAND PSD	ND0065919 DOMESTIC

PONDS	ND0076287
KALAMA SPECIALTY CHEMICALS, INC.	INDUSTRIAL

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
BRICKYARD HOLDINGS, INC.	1138-13
MARWIN MINE	SAND

Growth Potential

There is a low potential for growth in this watershed, with the exception of the area surrounding the City of Beaufort. The City of Beaufort and the Towns of Lady's Island, Burton, and Shell Point are projected to continue experiencing residential and commercial growth. Less than 25% of the total land area of Lady's Island, Burton or Shell Point is suitable for septic system installations; and another 25% or less is classified as marginally suitable. The majority of the watershed includes a collection of sea islands and Hunting Island State Park.

03050208-110

(Calibogue Sound)

General Description

Watershed 03050208-110 is located in Beaufort County and consists primarily of ***Calibogue Sound*** and its tributaries, which include the ***May River***, the ***Cooper River,*** and ***Broad Creek***. The watershed occupies 80,668 acres of the Coastal Zone region of South Carolina. The predominant soil types consist of an association of the Bohicket-Lynnhaven-Lakeland-Chipley series. The erodibility of the soil (K) averages 0.08, and the slope of the terrain averages 2%, with a range of 0-6%. Land use/land cover in the watershed includes: 35.2% water, 33.8% forested land, 9.7% nonforested wetland, 8.1% urban land, 7.4% forested wetland, 3.8% barren land, and 2.0% agricultural land.

The May River originates near the Town of Bluffton and accepts drainage from Stony Creek, Rose Dew Creek, Bull Creek (Savage Creek), and Bass Creek before joining Mackay Creek (Skull Creek, Jarvis Creek, Whooping Crane Pond, Golden Bear Pond, Old House Creek) to form Calibogue Sound. Mackay Creek connects Calibogue Sound to Port Royal Sound. Bull Creek (Hoophole Creek) connects the May River to the Cooper River. The Cooper River also accepts drainage from Ramshorn Creek (which connects to the New River Watershed) before flowing into Calibogue Sound. Streams draining directly into the sound include Bryan Creek (Barataria Creek), Big Savannah Pond, Little Savannah Pond, Hubert Pond, Broad Creek (The Folly, Point Comfort Creek, Boggy Gut), Calibogue Creek, and Braddock Cove. There are a total of 33.7 acres of lake waters and 13,453.3 estuarine acres in this watershed, all classified SFH with a few exceptions. The May River, Bull Creek, and the Cooper River from the New River to Ramshorn Creek and their tributaries are classified ORW.

Surface Water Quality

Station #	Type	Class	Description
MD-016	W	ORW/SFH	MOUTH OF MAY RIVER, 1.0MI W OF CHANNEL MARKER 29
MD-174	P	SFH	BROAD CREEK OPPOSITE END OF S-07-80
MD-175	P	SFH	CALIBOGUE SOUND AT MOUTH OF COOPER RIVER NEAR RED BUOY 32

May River (MD-016) – Aquatic life and recreational uses are fully supported. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter.

Broad Creek (MD-174) – Aquatic life uses are fully supported. This is a tidally influenced system with marsh drainage, which are often characterized by naturally low dissolved oxygen concentrations. Although dissolved oxygen excursions were noted, they were typical of values seen in such systems and are considered natural, not standards violations. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. Recreational uses are fully supported.

Calibogue Sound (MD-175) – Aquatic life uses are fully supported. This is a tidally influenced system with marsh drainage, which are often characterized by naturally low dissolved oxygen concentrations.

Although dissolved oxygen excursions were noted, they were typical of values seen in such systems and are considered natural, not standards violations. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. Recreational uses are fully supported.

Shellfish Monitoring Stations

Station #	Description
19-01	May River south of Palmetto Bluff, Marker #8
19-02	Unnamed creek at Jack Crow Island in Cooper River
19-03	Ramshorn Creek at Cooper River
19-09	Bull Creek at Cooper River
19-11	Bull Creek at Savage Creek
19-12	Bull Creek at May River
19-16	May River behind Bluffton Oyster Co-op
19-17A	Cooper River Marina at edge of CSZ
19-18	May River below drainage canal at Marker #11
19-19	May River at first dock in headwaters past bluff
19-24	May River at southern end of Crane Island
19-25	May River at Green Marker #25
20-01	Braddock Point – South end of Hilton Head Island
20-02	Calibogue Sound, Marker #32
20-03	Shark Bank and Broad Creek – CSZ Sea Pines WWTP, Marker #2
20-04A	Broad Creek at Palmetto Bay Marina CSZ – Ebb tide (combined 20-04E and 20-04F)
20-05	May River at Calibogue Sound
20-06	Jarvis Creek at Calibogue Sound
20-07	Buckingham Landing at bridge
20-10	Skull Creek at small creek from Mariner's Cove
20-11	Skull Creek, Marker #19
20-12	Skull Creek behind Hilton Head Seafood Company
20-15	Broad Creek at Lawton Creek
20-15A	Broad Creek at Calibogue Sound – North end of Buck Island
20-16	Creek behind Lynn Smith's Oyster Plant at Broad Creek
20-16A	Creek approximately 50 yds southeast of Station 20-16
20-17B	Broad Creek at Broad Creek Marina CSZ
20-18	Broad Creek at Shelter Cove Marina
20-19A	Broad Creek at Harbor Town Marina CSZ (combined 20-19E and 20-19F)
20-20A	Moss Creek Marina CSZ (combined 20-20E and 20-20F)
20-22	Old House Creek at Calibogue Sound
20-23	First major "Y" in Jarvis Creek
20-24	First major creek right after Marker #18
20-25	Broad Creek at confluence of channel at Old Oyster Factory
20-26	Northwest of S. Beach Marina Closure Zone

Groundwater Quality

Well #	Class	Aquifer	Location
AMB-092	GB	TERTIARY LIMESTONE	HILTON HEAD ISLAND

All water samples collected from ambient monitoring well ***AMB-092*** met standards for Class GB groundwater.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)*	*NPDES#* *TYPE* *COMMENT*
WHOOPING CRANE POND CONSERVANCY HILTON HEAD #1 PSD WWTP PIPE #: 004 FLOW: 0.50	SC0046191 MAJOR DOMESTIC WETLAND
CYPRESS CONSERVANCY HILTON HEAD #1 PSD WWTP PIPE #: 005 FLOW: 0.25	SC0046191 MAJOR DOMESTIC WETLAND
GOLDEN BEAR POND/INDIGO RUN HILTON HEAD #1 PSD WWTP PIPE #: 006 FLOW: 1.423	SC0046191 MAJOR DOMESTIC WETLAND
BOGGY GUT & WHITE IBIS MARSHES SOUTH ISLAND PSD PIPE #: 001 FLOW: 5.0	SC0042501 MAJOR DOMESTIC WETLAND
CALIBOGUE SOUND SOUTH ISLAND PSD/WTP PIPE #: 001 FLOW: M/R	SC0047724 MINOR DOMESTIC

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME *FACILITY TYPE*	*PERMIT #* *STATUS*
MALPHRUS CONSTRUCTION COMPANY INDUSTRIAL	IWP-203 INACTIVE
MELROSE PLANTATION TRANSFER STATION TRANSFER STATION	072492-6001 ACTIVE
HAIG POINT TRANSFER STATION TRANSFER STATION	072496-6001 ACTIVE

Land Application Sites

LAND APPLICATION SYSTEM	*ND#*

FACILITY NAME	*TYPE*
GOLF COURSES	ND0014567
WATER OAK UTILITY/MOSS CK PLANTATION	DOMESTIC
SPRAY IRRIGATION	ND0065854
HILTON HEAD #1 PSD	DOMESTIC
GOLF COURSES	ND0069191
BJW&SA/BLUFFTON REG.WWTP	DOMESTIC
SPRAYFIELD	ND0000566
BRIGHTON BEACH MHP	DOMESTIC
SPRAYFIELDS	ND0063100
BROAD CREEK PSD	DOMESTIC
GOLF COURSE	ND0013528
SOUTH ISLAND PSD/LONG COVE	DOMESTIC
GOLF COURSE	ND0017141
SOUTH ISLAND PSD/WEXFORD PLANT	DOMESTIC
SPRAYFIELDS	ND0064033
SOUTH ISLAND PSD	DOMESTIC
GOLF COURSE	ND0062286
HAIG POINT/MELROSE WWTP	DOMESTIC

Mining Activities

MINING COMPANY *MINE NAME*	*PERMIT #* *MINERAL*
AE CLELAND CONSTRUCTION, INC.	1244-13
DAVIS ROAD LOT 1-A	SAND/CLAY
JEJ CONSTRUCTION COMPANY, INC.	1088-13
WARD #1 MINE	SAND
HADWIN CONSTRUCTION COMPANY	1066-13
PRITCHARDVILLE PIT	SAND
BUNTON CONSTRUCTION	1205-13
WALTER GARFIELD MINE	SAND/CLAY
T.H. COBERN CONSTRUCTION COMPANY	1182-13
COBERN MINE	SAND/CLAY
DOLPHIN MANAGEMENT INC.	1360-13
LAKE CHRISTINA	SAND/SANDCLAY

Growth Potential

There is a high potential for growth in this watershed, which contains portions of the Towns of Bluffton and Hilton Head. The Town of Bluffton is an unincorporated area experiencing substantial growth. Del Webb's Sun City retirement community development near Bluffton has added tremendous

residential and commercial growth to the area. Between 25 and 50% of the total land area is suitable for septic system installations; and another 25% or less is classified as marginally suitable. Beaufort-Jasper Water and Sewer Authority has extended water and sewer services to the area to provide for the growth. They were then able to extend the services over to Hilton Head, where the natural aquifer is becoming shallow and salty. The area along U.S. Highway 278 en route from Bluffton to Hilton Head is a high growth residential and commercial corridor. There are numerous golf and/or residential developments, and plans to develop nearby areas in a similar fashion. The new toll road that by-passes a portion of U.S. Highway 278 diverts the heavy commercial tourism traffic to more residential areas and the beaches. Hilton Head Island has adequate sewer service, but is trying to control growth due to size limitations of the highly developed island. However, this area is still projected as a growth area due to the following plans: (1) Beaufort and Jasper Counties are cooperating to construct a regional wastewater treatment plant in the Cherry Point area; (2) the regional water and sewer authority has proposed a regional water supply project to serve southern Beaufort and Jasper Counties with the Savannah River as the source; (3) a four lane, limited access highway connecting Hilton Head Island with I-95 will be built in the next few years; and (4) Union Camp has plans to develop at least a portion of its holding in southern Beaufort County.

03050208-120

(Great Swamp)

General Description

Watershed 03050208-120 is located in Jasper County and consists primarily of ***Great Swamp*** and its tributaries. The watershed occupies 81,764 acres of the Lower Coastal Plain and Coastal Zone regions of South Carolina. The predominant soil types consist of an association of the Rains-Paxville-Albany-Lynchburg series. The erodibility of the soil (K) averages 0.17, and the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 54.6% forested land, 28.0% forested wetland, 9.7% agricultural land, 5.9% barren land, 0.8% nonforested wetland, 0.6% urban land, and 0.4% water.

Great Swamp accepts drainage from Calfpen Bay (Gillison Branch), Poli Bay, Switzerland Canal (Broad Water, Wagon Branch), Darn Swamp, Green Swamp, and Bagshaw Swamp (Sand Branch, Buck Bay). Further downstream, Great Swamp accepts drainage from Kato Bay, Shingle Swamp, Causeway Swamp (Hog Crawl Swamp, Fivemile Swamp, Halfmoon Bay, Sixmile Swamp, Sevenmile Swamp, Bahama Swamp), Thomas Swamp, and Garrett Lake. There are a total of 46.8 stream miles and 67.8 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
MD-129	W	FW	GREAT SWAMP AT US 17

Great Swamp (MD-129) **–** Aquatic life uses are fully supported. This is a blackwater swamp system, characterized by naturally low pH and dissolved oxygen concentrations. Although dissolved oxygen and pH excursions occurred, they were typical of values seen in blackwater swamps and are considered natural, not standards violations. Recreational uses are partially supported due to fecal coliform bacteria excursions.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM / ***FACILITY NAME*** / ***PERMITTED FLOW @ PIPE (MGD)***	***NPDES#*** / ***TYPE*** / ***COMMENT***
WWTP PRIOR TO DISPOSAL BJW&SA/OKATIE WATER RECLAIM. FACILITY PIPE #: 001 FLOW: 3.2	SC0047279 MAJOR DOMESTIC

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME *FACILITY TYPE*	*PERMIT #* *STATUS*
JASPER COUNTY LANDFILL DOMESTIC	DWP-108 CLOSED
JASPER COUNTY C/C LANDFILL DOMESTIC	DWP-907, CWP-007, 271001-1201 CLOSED
TOWN OF RIDGELAND DOMESTIC	DWP-113 INACTIVE

Land Application Sites

LAND APPLICATION SYSTEM *FACILITY NAME*	*ND#* *TYPE*
SPRAYFIELD TOWN OF RIDGELAND WWTP	ND0067971 DOMESTIC
SPRAY SITES BJW&SA/CHERRY POINT-OKATIE	ND0074004 DOMESTIC

Mining Activities

MINING COMPANY *MINE NAME*	*PERMIT #* *MINERAL*
SOUTHERN AGGREGATES CO., INC. DEERFIELD MINE	0016-53 SAND

Growth Potential

There is a high potential for residential growth in this watershed, which contains the western edge of the Town of Ridgeland. I-95 crosses the Town of Ridgeland and may provide some growth to the area. Ridgeland has expanded its regional treatment facility, which was built to address the needs of Del Webb's Sun City and Hilton Head. The proposed expansion is to handle future growth.

03050208-130

(New River)

General Description

Watershed 03050208-130 is in located Jasper and Beaufort Counties and consists primarily of the ***New River*** and its tributaries. The watershed occupies 67,697 acres of the Coastal Zone region of South Carolina. The predominant soil types consist of an association of the Argent-Okeetee-Santee series. The erodibility of the soil (K) averages 0.19, and the slope of the terrain averages 1%, with a range of 0-6%. Land use/land cover in the watershed includes: 48.2% forested land, 22.5% forested wetland, 13.2% nonforested wetland, 6.1% water, 5.1% barren land, 3.8% agricultural land, and 1.1% urban land.

The New River flows out of the Great Swamp Watershed, and accepts drainage from Pickseed Swamp, Brickyard Swamp (Bob Dam Swamp, Turkey Pond, Fourmile Swamp), Fox Pond, and Horse Swamp (Two Bridge Swamp). At the base of the watershed, Ramshorn Creek connects the New River to the Cooper River and the Calibogue Sound Watershed, and Watts Cut connects the New River to the Wright River Watershed. Mungen Creek drains into two locations in the last bend of the New River. There are a total of 8.9 stream miles, 15.0 acres of lake waters, and 2,851.4 acres of estuarine waters in this watershed, all classified SA except for the portion of Ramshorn Creek connected to the watershed that is classified SFH.

Surface Water Quality

Station #	Type	Class	Description
MD-118	P	SA	NEW RIVER AT SC 170, 9MI W OF BLUFFTON

New River (MD-118) – Aquatic life uses are not supported due to pH excursions. This is a tidally influenced system, which are often characterized by naturally low dissolved oxygen concentrations. Although dissolved oxygen excursions were noted, they were typical of values seen in such systems and are considered natural, not standards violations. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. In sediments, a very high concentration of copper exceeding both the ERL and ERM values was measured in the 1999 sample. Recreational uses are not supported due to fecal coliform bacteria excursions. In addition, there is a significant increasing trend in fecal coliform bacteria concentrations.

A fish consumption advisory has been issued by the Department for mercury and includes the New River within this watershed (see advisory p.58).

Shellfish Monitoring Stations

Station #	Description
19-02A	COOPER RIVER AT NEW RIVER
19-04	COOPER RIVER AT MARKER #41 – DAUFUSKIE ISLAND
19-05	BLOODY POINT AT MUNGEN CREEK
19-07	RAMSHORN CREEK AT NEW RIVER
19-08	FIRST CREEK ON LEFT UP NEW RIVER AT POLLUTION LINE
19-21	2.5 MILES UP NEW RIVER FROM STATION 19-02A
19-23	NEW RIVER AT WATTS CUT

NPDES Program

Active NPDES Facilities

RECEIVING STREAM / ***FACILITY NAME*** / ***PERMITTED FLOW @ PIPE (MGD)***	***NPDES#*** / ***TYPE*** / ***COMMENT***
GREAT SWAMP TRIBUTARY TO NEW RIVER	SC0047279
BJW&SA/OKATIE WATER RECLAIM. FACILITY	MAJOR DOMESTIC
PIPE #: 002 FLOW: 3.2	
PIPE #: 002 FLOW: 4.8	PROPOSED

Nonpoint Source Management Program

Land Disposal Activities

Land Application Sites

LAND APPLICATION SYSTEM / ***FACILITY NAME***	***ND#*** / ***TYPE***
GOLF COURSE	ND0068179
DAUFUSKIE ISLAND CLUB & RESORT	DOMESTIC

Mining Activities

MINING COMPANY / ***MINE NAME***	***PERMIT #*** / ***MINERAL***
DLB	1381-53
DLB #2	SAND
ABLE CONTRACTING	1386-53
----------	SAND
TEAM CONSTRUCTION, INC.	1269-53
ALPHA 3	SAND/SANDCLAY
BUNTON CONSTRUCTION	1309-13
DAVIS	SAND/SANDCLAY
BALL PROPERTY	1192-13
BALL PROPERTY MINE	SAND/SANDCLAY

Growth Potential

There is a moderate to high potential for growth in this watershed, which contains portions of the Towns of Hardeeville and Bluffton. I-95 crosses the Town of Hardeeville and may provide some growth to the area. Beaufort-Jasper Water and Sewer Authority is in the process of expanding the wastewater treatment facility, which should promote future growth in the Hardeeville area. Less than 25% of the total land area is suitable for septic system installations; and another 25% or less is classified as marginally suitable. Also, growth in the area tends to be spread out over a large area not served by a sewer system. The siting of the DaimlerChrysler van plant across the Savannah River from Hardeeville should also provide residential and commercial growth to the area.

The Town of Bluffton is an unincorporated area experiencing substantial growth. Del Webb's Sun City retirement community development near Bluffton has added tremendous residential and commercial growth to the area. Between 25 and 50% of the total land area is suitable for septic system installations; and another 25% or less is classified as marginally suitable. Beaufort-Jasper Water and Sewer Authority has extended water and sewer services to the area to provide for the growth.

03050208-140

(Wright River)

General Description

Watershed 03050208-140 is located in Jasper County and consists primarily of the ***Wright River*** and its tributaries. The watershed occupies 27,693 acres of the Coastal Zone region of South Carolina. The predominant soil types consist of an association of the Bohicket-Capers-Coosaw series. The erodibility of the soil (K) averages 0.12, and the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 43.8% nonforested wetland, 21.1% forested land, 17.4% water, 11.8% forested wetland, 3.3% barren land, 2.1% agricultural land, and 0.5% urban land.

The Wright River accepts drainage from Salt Water Creek (Monkey John Swamp), Fields Cut, and Watts Cut. Fields Cut connects the Wright River to the Savannah River, and Watts Cut connects the Wright River to the New River. There are a total 63.6 acres of lake waters and 2,851.4 acres of estuarine waters in this watershed, all classified SA.

Surface Water Quality

There are no water quality monitoring stations in this watershed.

Shellfish Monitoring Stations

Station #	Description
19-06	WRIGHT RIVER, MARKER #43
19-20	1.5 MILES UP THE WRIGHT RIVER FROM FIELDS CUT
19-22	WRIGHT RIVER AT FIELDS CUT

NPDES Program

Active NPDES Facilities

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)*	*NPDES#* *TYPE* *COMMENT*
SALT WATER CREEK BJW&SA/HARDEEVILLE-DELTA PLANT PIPE #: 001 FLOW: 0.055	SC0048127 MINOR DOMESTIC

Nonpoint Source Management Program

Mining Activities

MINING COMPANY *MINE NAME*	*PERMIT #* *MINERAL*
AE STUCCO, INC. ROBERT LOYD	1353-53 SAND/SANDCLAY

Growth Potential

There is a low potential for growth in this watershed.

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APPENDIX A.

Watershed Boundary Changes

Watershed Boundary Changes

SCDHEC Geographic Features		Original 11-digit HU Code	Revised 11-digit HU Code
Water Quality Monitoring Stations			
CSTL-068		03050208020	03050208040
CSTL-107		03050208090	03050208070
MD-128		03050208090	03050208070
MD-001		03050208100	03050208090
MD-002		03050208100	03050208090
MD-003		03050208100	03050208090
MD-004		03050208100	03050208090
MD-005		03050208100	03050208090
MD-013		03050208110	03050208090
MD-168		03050208010	03050208100
MD-129		03050208130	03050208120
Biological Monitoring Stations			
CSTL-551		03050208020	03050208040
NPDES	***Pipe #***		
SC0038989	001	03050208020	03050208040
SC0035394	001	03050208090	03050208070
SC0034550	001	03050208090	03050208070
SC0047929	001	03050208090	03050208070
SC0046299	001	03050208100	03050208090
ND0067393	001	03050208100	03050208090
SC0000825	001	03050208100	03050208090
ND0067091	001	03050208100	03050208090
SC0041726	001	03050208100	03050208090
SC0021016	001	03050208100	03050208090
SC0042609	001	03050208100	03050208090
SC0002577	001	03050208100	03050208090
SC0002577	003	03050208100	03050208090
ND0068462	001	03050208110	03050208090
ND0074004	001	03050208130	03050208120
Mining Operations			
I-01123		03050208020	03050208040
GP1-01233		03050208090	03050208070
I-00857		03050208100	03050208090
GP1-01190		03050208100	03050208090
I-00016		03050208130	03050208120
Landfills			
CWP-045		03050208020	03050208040
151001-1201		03050208020	03050208040
UNAVAILABLE		03050208090	03050208070
UNAVAILABLE		03050208090	03050208070
UNAVAILABLE		03050208100	03050208090

Watershed Boundary Changes		
UNAVAILABLE	03050208100	03050208090
UNAVAILABLE	03050208100	03050208090
072410-1201	03050208100	03050208090
CWP-006	03050208100	03050208090
IWP-233	03050208100	03050208090
DWP-108	03050208130	03050208120
DWP-108	03050208130	03050208120

APPENDIX B.

Salkehatchie River Basin

Ambient Water Quality Monitoring Site Descriptions

Station #	Type	Class	Description
03050207-010			
CSTL-588	BIO	FW	ROSEMARY CREEK AT S-06-167
CSTL-578	BIO	FW	BUCK CREEK AT S-06-167
CSTL-028	P	FW	SALKEHATCHIE RIVER AT SC 64, 2MI W OF BARNWELL
03050207-020			
CSTL-056	BIO	FW	TURKEY CREEK AT S-06-169
CL-064	W	FW	LAKE EDGAR BROWN IN FOREBAY NEAR DAM
CSTL-001B	S	FW	TURKEY CREEK 1MI BELOW MILLIKEN/BARNWELL OUTFALL AT CLINTON ST.
03050207-030			
CSTL-003	P	FW	SALKEHATCHIE RIVER AT SC 278, 2.5MI S OF BARNWELL
CSTL-577	BIO	FW	TOBY CREEK AT S-06-29
CSTL-579	BIO	FW	BIRDS BRANCH AT S-05-567
03050207-040			
CSTL-048	W	FW	SALKEHATCHIE RIVER AT US 301 & US 321
CSTL-053	BIO	FW	SAVANNAH CREEK AT S-05-87
CSTL-006	P	FW	SALKEHATCHIE RIVER AT US 601, 9MI NE OF HAMPTON
CSTL-104	W	FW	SALKEHATCHIE RIVER AT SC 63
03050207-050			
CSTL-051	BIO	FW	JACKSON BRANCH AT S-03-18
CSTL-076	W	FW	WHIPPY SWAMP AT S-25-13
03050207-060			
CSTL-566	BIO	FW	LITTLE SALKEHATCHIE RIVER AT SC 70
CSTL-115	W	FW	LITTLE SALKEHATCHIE RIVER AT US 601
03050207-070			
CSTL-576	BIO	FW*	LEMON CREEK AT S-05-74
CSTL-116	W	FW*	LEMON CREEK AT S-15-541
03050207-080			
CSTL-117	W	FW	LITTLE SALKEHATCHIE RIVER AT SC 64
03050207-090			
CSTL-119	W	FW	BUCKHEAD CREEK AT SC 212
03050207-100			
CSTL-118	W	FW	WILLOW SWAMP AT S-15-27
03050207-110			
CSTL-120	W	FW	LITTLE SALKEHATCHIE RIVER AT SC 63
CSTL-585	BIO	FW	SANDY RUN CREEK AT US 21

For further details concerning sampling frequency and parameters sampled, please visit our website at *www.scdhec.net/eqc/admin/html/eqcpubs.html#wqreports* for the current State of S.C. Monitoring Strategy.

Water Quality Data

Spreadsheet Legend

Station Information:

STATION NUMBER Station ID

TYPE SCDHEC station type code

- P = Primary station, sampled monthly all year round
- S = Secondary station, sampled monthly May - October
- P* = Secondary station upgraded to primary station parameter coverage and sampling frequency for basin study
- W = Special watershed station added for the Salkehatchie River Basin study
- BIO = Indicates macroinvertebrate community data assessed

WATERBODY NAME Stream or Lake Name

CLASS Stream classification at the point where monitoring station is located

Parameter Abbreviations and Parameter Measurement Units:

DO	Dissolved Oxygen (mg/l)	NH3	Ammonia (mg/l)
BOD	Five-Day Biochemical Oxygen Demand (mg/l)	CD	Cadmium (ug/l)
pH	pH (SU)	CR	Chromium (ug/l)
TP	Total Phosphorus (mg/l)	CU	Copper (ug/l)
TN	Total Nitrogen (mg/l)	PB	Lead (ug/l)
TURB	Turbidity (NTU)	HG	Mercury (ug/l)
TSS	Total Suspended Solids (mg/l)	NI	Nickel (ug/l)
BACT	Fecal Coliform Bacteria (#/100 ml)	ZN	Zinc (ug/l)

Statistical Abbreviations:

N For standards compliance, number of surface samples collected between January 1996 and December 2000. For trends, number of surface samples collected between January 1984 and December 2000. For total phosphorus, an additional trend period of January 1992 to December 2000 is also reported.

EXC. Number of samples contravening the appropriate standard

% Percentage of samples contravening the appropriate standard

MEAN EXC. Mean of samples that contravened the applied standard

MED For heavy metals with a human health criterion, this is the median of all surface samples between January 1996 and December 2000. DL indicates that the median was the detection limit.

MAG Magnitude of any statistically significant trend, average change per year, expressed in parameter measurement units

GEO MEAN Geometric mean of fecal coliform bacteria samples collected between January 1996 and December 2000

Key to Trends:

- D Statistically significant decreasing trend in parameter concentration
- I Statistically significant increasing trend in parameter concentration
- * No statistically significant trend
- Blank Insufficient data to test for long term trends

SALKEHATCHIE RIVER BASIN WATER QUALITY SUMMARY

STATION				DO	DO	DO	MEAN	TRENDS (86 -2000)					
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	DO	N	MAG	BOD	N	MAG
03050207010													
CSTL-588	BIO	ROSEMARY CK	FW										
CSTL-578	BIO	BUCK CK	FW										
CSTL-028	P	SALKEHATCHIE RVR	FW	59	0	0		*	178	-0.018	D	177	-0.033
03050207020													
CSTL-056	BIO	TURKEY CK	FW										
CL-064	SS*	LAKE EDGAR BROWN	FW	9	1	11	4.00	*	47	0.057			
CSTL-001B	P*	TURKEY CK	FW	39	0	0		*	92	0.045	D	91	-0.080
03050207030													
CSTL-003	P	SALKEHATCHIE RVR	FW	58	1	2	4.00	*	177	0.028	D	176	-0.067
CSTL-577	BIO	TOBY CK	FW										
CSTL-579	BIO	BIRDS BRANCH	FW										
03050207040													
CSTL-048	SS	SALKEHATCHIE RVR	FW	24	0	0							
CSTL-053	BIO	SAVANNAH CK	FW										
CSTL-006	P	SALKEHATCHIE RVR	FW	56	2	4	4.135	*	169	-0.025	D	168	-0.067
CSTL-104	SS	SALKEHATCHIE RVR	FW	22	2	9	4.250						
03050207050													
CSTL-051	BIO	JACKSON BRANCH	FW										
CSTL-076	SS	WHIPPY SWAMP	FW	23	2	9	3.850						
03050207060													
CSTL-566	BIO	LITTLE SALKEHATCHIE RVR	FW										
CSTL-115	SS	LITTLE SALKEHATCHIE RVR	FW	24	0	0							
03050207070													
CSTL-576	BIO	LEMON CK	FW*										
CSTL-116	SS	LEMON CK	FW*	24	1	4	2.70						
03050207080													
CSTL-117	SS	LITTLE SALKEHATCHIE RVR	FW	20	1	5	4.90						
03050207090													
CSTL-119	SS	BUCKHEAD CK	FW	20	10	50	2.628						
03050207100													
CSTL-118	SS	WILLOW SWAMP	FW	21	5	24	2.914						
03050207110													
CSTL-120	SS	LITTLE SALKEHATCHIE RVR	FW	21	7	33	3.786						

SALKEHATCHIE RIVER BASIN WATER QUALITY SUMMARY

STATION				pH	pH	pH	MEAN	TRENDS (86-2000)			TURB	TURB	TURB	MEAN	TRENDS (86-2000)		
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	PH	N	MAG	N	EXC.	%	EXC.	TURB	N	MAG
03050207010																	
CSTL-588	BIO	ROSEMARY CK	FW														
CSTL-578	BIO	BUCK CK	FW														
CSTL-028	P	SALKEHATCHIE RVR	FW	59	5	8	6.408	D	179	-0.030	59	0	0		*	179	0.017
03050207020																	
CSTL-056	BIO	TURKEY CK	FW														
CL-064	SS*	LAKE EDGAR BROWN	FW	9	0	0		*	46	-0.077	6	0	0				
CSTL-001B	P*	TURKEY CK	FW	39	1	3	5.90	D	92	-0.052	39	0	0		*	90	0.028
03050207030																	
CSTL-003	P	SALKEHATCHIE RVR	FW	58	3	5	5.663	D	178	-0.032	57	0	0		*	176	0.022
CSTL-577	BIO	TOBY CK	FW														
CSTL-579	BIO	BIRDS BRANCH	FW														
03050207040																	
CSTL-048	SS	SALKEHATCHIE RVR	FW	23	0	0					24	0	0				
CSTL-053	BIO	SAVANNAH CK	FW														
CSTL-006	P	SALKEHATCHIE RVR	FW	56	5	9	5.432	I	168	0.017	55	0	0		*	168	0.026
CSTL-104	SS	SALKEHATCHIE RVR	FW	22	1	5	5.91				22	0	0				
03050207050																	
CSTL-051	BIO	JACKSON BRANCH	FW														
CSTL-076	SS	WHIPPY SWAMP	FW	23	2	9	5.545				22	0	0				
03050207060																	
CSTL-566	BIO	LITTLE SALKEHATCHIE RVR	FW														
CSTL-115	SS	LITTLE SALKEHATCHIE RVR	FW	23	0	0					24	0	0				
03050207070																	
CSTL-576	BIO	LEMON CK	FW*														
CSTL-116	SS	LEMON CK	FW*	23	0	0					24	0	0				
03050207080																	
CSTL-117	SS	LITTLE SALKEHATCHIE RVR	FW	20	1	5	5.91				20	1	5	55			
03050207090																	
CSTL-119	SS	BUCKHEAD CK	FW	20	14	70	5.686				20	0	0				
03050207100																	
CSTL-118	SS	WILLOW SWAMP	FW	21	1	5	5.85				22	0	0				
03050207110																	
CSTL-120	SS	LITTLE SALKEHATCHIE RVR	FW	21	1	5	5.66				21	0	0				

SALKEHATCHIE RIVER BASIN WATER QUALITY SUMMARY

STATION				TP	TP	TP	MEAN	TRENDS (92-2000)			TRENDS (86-2000)		
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	TP	N	MAG	TP	N	MAG
03050207010													
CSTL-588	BIO	ROSEMARY CK	FW										
CSTL-578	BIO	BUCK CK	FW										
CSTL-028	P	SALKEHATCHIE RVR	FW					D	75	-0.003	D	143	-0.003
03050207020													
CSTL-056	BIO	TURKEY CK	FW										
CL-064	SS*	LAKE EDGAR BROWN	FW										
CSTL-001B	P*	TURKEY CK	FW					*	39	0.003	D	64	-0.013
03050207030													
CSTL-003	P	SALKEHATCHIE RVR	FW					D	74	-0.010	D	145	-0.008
CSTL-577	BIO	TOBY CK	FW										
CSTL-579	BIO	BIRDS BRANCH	FW										
03050207040													
CSTL-048	SS	SALKEHATCHIE RVR	FW										
CSTL-053	BIO	SAVANNAH CK	FW										
CSTL-006	P	SALKEHATCHIE RVR	FW					*	73	0.001	D	137	-0.001
CSTL-104	SS	SALKEHATCHIE RVR	FW										
03050207050													
CSTL-051	BIO	JACKSON BRANCH	FW										
CSTL-076	SS	WHIPPY SWAMP	FW										
03050207060													
CSTL-566	BIO	LITTLE SALKEHATCHIE RVR	FW										
CSTL-115	SS	LITTLE SALKEHATCHIE RVR	FW										
03050207070													
CSTL-576	BIO	LEMON CK	FW*										
CSTL-116	SS	LEMON CK	FW*										
03050207080													
CSTL-117	SS	LITTLE SALKEHATCHIE RVR	FW										
03050207090													
CSTL-119	SS	BUCKHEAD CK	FW										
03050207100													
CSTL-118	SS	WILLOW SWAMP	FW										
03050207110													
CSTL-120	SS	LITTLE SALKEHATCHIE RVR	FW										

SALKEHATCHIE RIVER BASIN WATER QUALITY SUMMARY

STATION				TN	TN	TN	MEAN	TRENDS (86-2000)			CHL	CHL	CHL	MEAN	TRENDS (86-2000)		
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	TN	N	MAG	N	EXC.	%	EXC.	TSS	N	MAG
03050207010																	
CSTL-588	BIO	ROSEMARY CK	FW														
CSTL-578	BIO	BUCK CK	FW														
CSTL-028	P	SALKEHATCHIE RVR	FW					D	170	-0.011							
03050207020																	
CSTL-056	BIO	TURKEY CK	FW														
CL-064	SS*	LAKE EDGAR BROWN	FW	6	0	0		D	32	-0.164	9	3	33	146.33			
CSTL-001B	P*	TURKEY CK	FW					*	32	0.040							
03050207030																	
CSTL-003	P	SALKEHATCHIE RVR	FW					D	172	-0.010							
CSTL-577	BIO	TOBY CK	FW														
CSTL-579	BIO	BIRDS BRANCH	FW														
03050207040																	
CSTL-048	SS	SALKEHATCHIE RVR	FW														
CSTL-053	BIO	SAVANNAH CK	FW														
CSTL-006	P	SALKEHATCHIE RVR	FW					D	165	-0.013							
CSTL-104	SS	SALKEHATCHIE RVR	FW														
03050207050																	
CSTL-051	BIO	JACKSON BRANCH	FW														
CSTL-076	SS	WHIPPY SWAMP	FW														
03050207060																	
CSTL-566	BIO	LITTLE SALKEHATCHIE RVR	FW														
CSTL-115	SS	LITTLE SALKEHATCHIE RVR	FW														
03050207070																	
CSTL-576	BIO	LEMON CK	FW*														
CSTL-116	SS	LEMON CK	FW*														
03050207080																	
CSTL-117	SS	LITTLE SALKEHATCHIE RVR	FW														
03050207090																	
CSTL-119	SS	BUCKHEAD CK	FW														
03050207100																	
CSTL-118	SS	WILLOW SWAMP	FW														
03050207110																	
CSTL-120	SS	LITTLE SALKEHATCHIE RVR	FW														

SALKEHATCHIE RIVER BASIN WATER QUALITY SUMMARY

STATION				GEO	BACT	BACT	BACT	MEAN	TRENDS (86-2000)			NH3	NH3	NH3	CD	CD	CD	MEAN
NUMBER	TYPE	WATERBODY NAME	CLASS	MEAN	N	EXC.	%	EXC.	BACT	N	MAG	N	EXC.	%	N	EXC.	%	EXC.
03050207010																		
CSTL-588	BIO	ROSEMARY CK	FW															
CSTL-578	BIO	BUCK CK	FW															
CSTL-028	P	SALKEHATCHIE RVR	FW	106	59	3	5	440	D	177	-2.121	55	0	0	19	0	0	
03050207020																		
CSTL-056	BIO	TURKEY CK	FW															
CL-064	SS*	LAKE EDGAR BROWN	FW	46	6	0	0					6	0	0				
CSTL-001B	P*	TURKEY CK	FW	132	39	5	13	550	*	92	2.681	30	0	0	10	0	0	
03050207030																		
CSTL-003	P	SALKEHATCHIE RVR	FW	179	58	14	24	794	D	176	-9.946	57	0	0	19	0	0	
CSTL-577	BIO	TOBY CK	FW															
CSTL-579	BIO	BIRDS BRANCH	FW															
03050207040																		
CSTL-048	SS	SALKEHATCHIE RVR	FW	97	24	5	21	624				22	0	0	7	0	0	
CSTL-053	BIO	SAVANNAH CK	FW															
CSTL-006	P	SALKEHATCHIE RVR	FW	164	56	8	14	724	*	165	-0.667	56	0	0	21	0	0	
CSTL-104	SS	SALKEHATCHIE RVR	FW	114	21	2	10	770				19	0	0	7	0	0	
03050207050																		
CSTL-051	BIO	JACKSON BRANCH	FW															
CSTL-076	SS	WHIPPY SWAMP	FW	170	23	3	13	537				22	0	0	7	0	0	
03050207060																		
CSTL-566	BIO	LITTLE SALKEHATCHIE RVR	FW															
CSTL-115	SS	LITTLE SALKEHATCHIE RVR	FW	116	24	1	4	600				22	0	0	8	0	0	
03050207070																		
CSTL-576	BIO	LEMON CK	FW*															
CSTL-116	SS	LEMON CK	FW*	104	24	3	13	557				24	0	0	8	0	0	
03050207080																		
CSTL-117	SS	LITTLE SALKEHATCHIE RVR	FW	249	20	4	20	1555				17	0	0	6	0	0	
03050207090																		
CSTL-119	SS	BUCKHEAD CK	FW	238	20	7	35	1733				18	0	0	5	0	0	
03050207100																		
CSTL-118	SS	WILLOW SWAMP	FW	209	22	6	27	842				20	0	0	6	0	0	
03050207110																		
CSTL-120	SS	LITTLE SALKEHATCHIE RVR	FW	195	21	3	14	540				19	0	0	6	0	0	

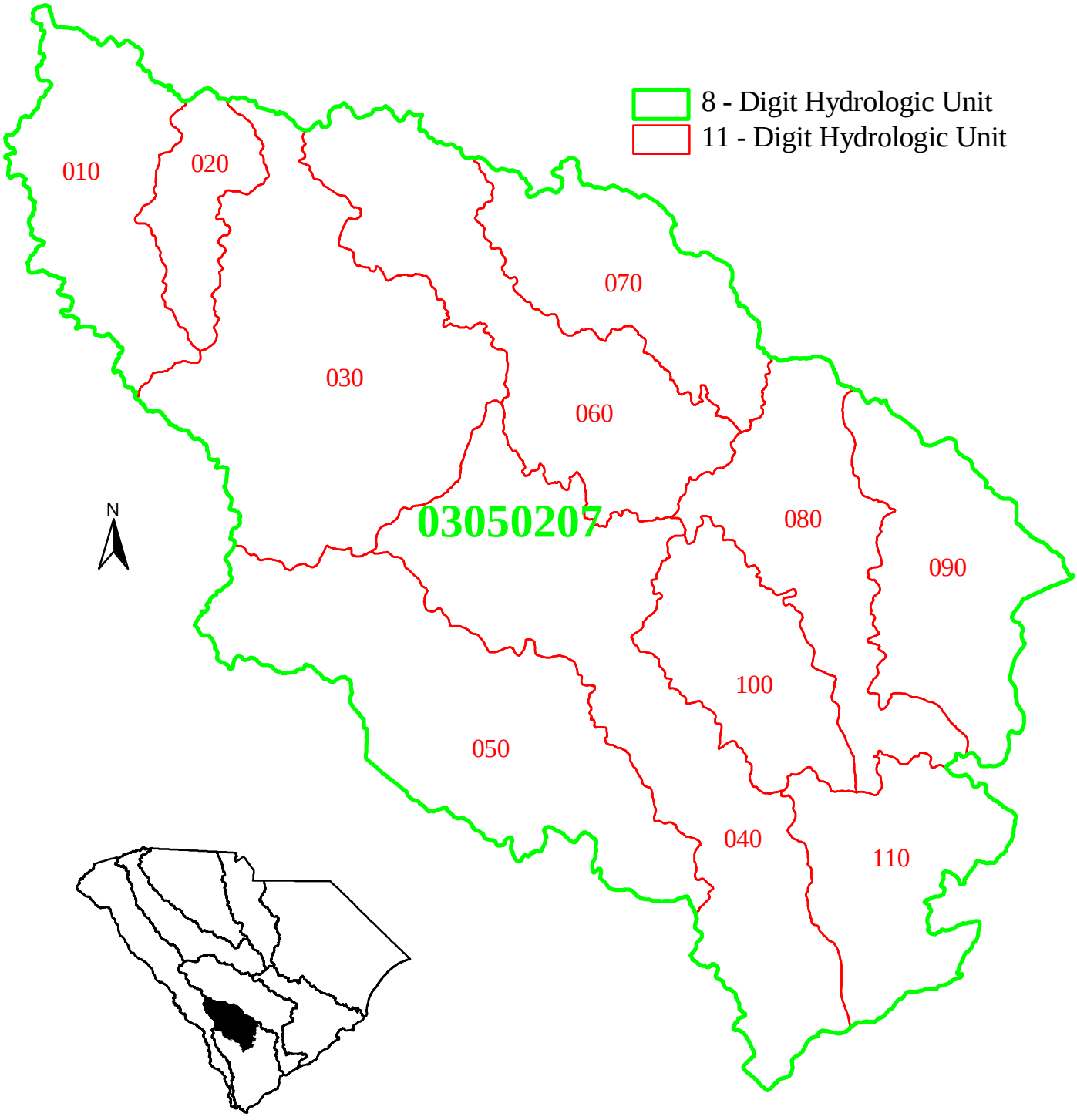
SALKEHATCHIE RIVER BASIN WATER QUALITY SUMMARY

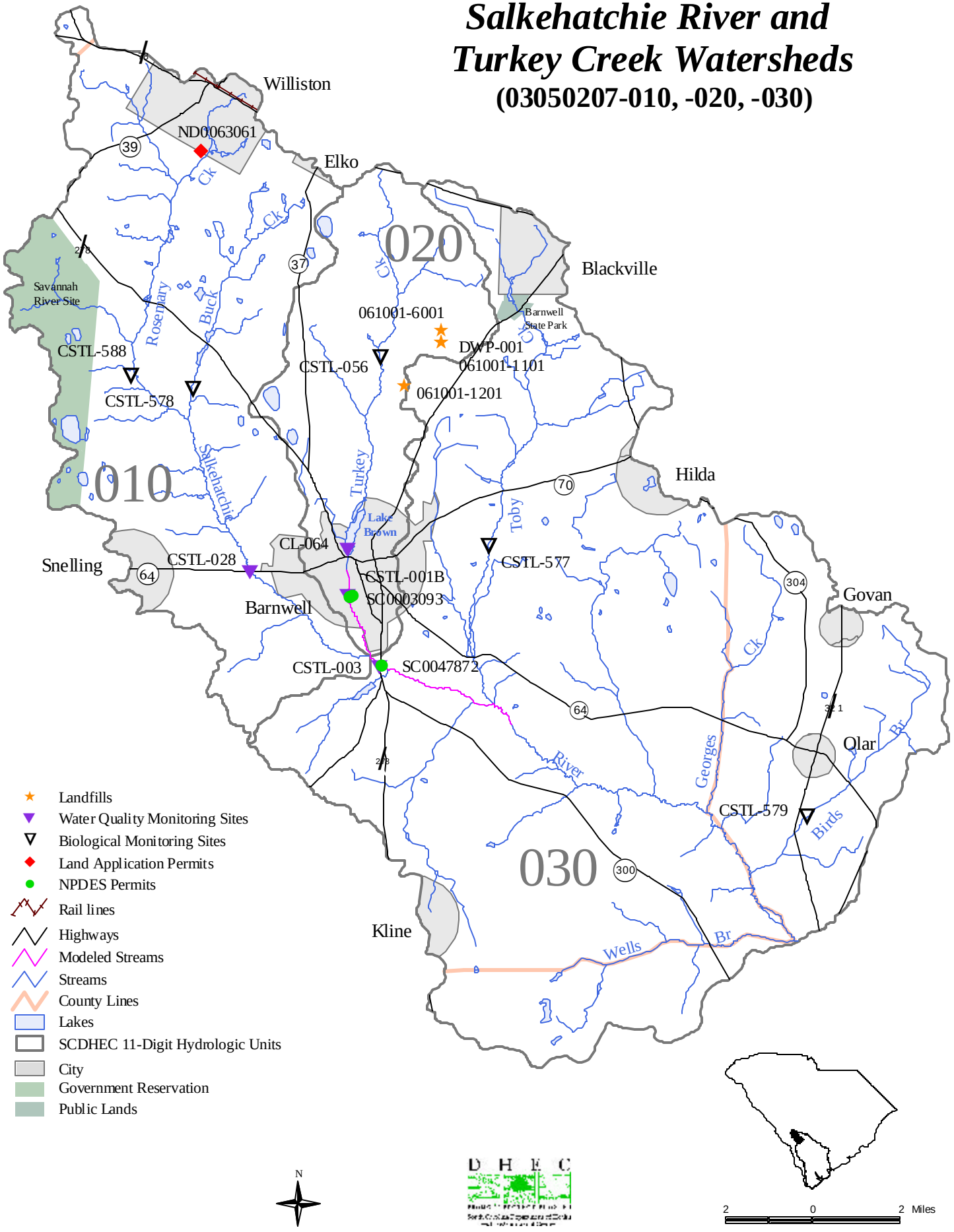
STATION				CR	CR	CR	MEAN	CU	CU	CU	MEAN	PB	PB	PB	MEAN	HG	HG	HG
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	N	EXC.	%	EXC.	N	EXC.	%	EXC.	N	EXC.	%
03050207010																		
CSTL-588	BIO	ROSEMARY CK	FW															
CSTL-578	BIO	BUCK CK	FW															
CSTL-028	P	SALKEHATCHIE RVR	FW	19	0	0		19	1	5	20	19	1	5	90	19	0	0
03050207020																		
CSTL-056	BIO	TURKEY CK	FW															
CL-064	SS*	LAKE EDGAR BROWN	FW															
CSTL-001B	P*	TURKEY CK	FW	10	0	0		10	0	0		10	0	0		10	0	0
03050207030																		
CSTL-003	P	SALKEHATCHIE RVR	FW	19	0	0		19	0	0		19	1	5	430	19	0	0
CSTL-577	BIO	TOBY CK	FW															
CSTL-579	BIO	BIRDS BRANCH	FW															
03050207040																		
CSTL-048	SS	SALKEHATCHIE RVR	FW	7	0	0		7	0	0		7	0	0		7	0	0
CSTL-053	BIO	SAVANNAH CK	FW															
CSTL-006	P	SALKEHATCHIE RVR	FW	21	0	0		20	0	0		21	0	0		21	0	0
CSTL-104	SS	SALKEHATCHIE RVR	FW	7	0	0		7	0	0		7	0	0		7	0	0
03050207050																		
CSTL-051	BIO	JACKSON BRANCH	FW															
CSTL-076	SS	WHIPPY SWAMP	FW	7	0	0		7	0	0		7	0	0		7	0	0
03050207060																		
CSTL-566	BIO	LITTLE SALKEHATCHIE RVR	FW															
CSTL-115	SS	LITTLE SALKEHATCHIE RVR	FW	8	0	0		8	0	0		8	0	0		8	0	0
03050207070																		
CSTL-576	BIO	LEMON CK	FW*															
CSTL-116	SS	LEMON CK	FW*	8	0	0		8	0	0		8	0	0		8	0	0
03050207080																		
CSTL-117	SS	LITTLE SALKEHATCHIE RVR	FW	6	0	0		6	0	0		6	0	0		6	0	0
03050207090																		
CSTL-119	SS	BUCKHEAD CK	FW	5	0	0		5	1	20	20	5	0	0		5	0	0
03050207100																		
CSTL-118	SS	WILLOW SWAMP	FW	6	0	0		6	0	0		6	0	0		6	0	0
03050207110																		
CSTL-120	SS	LITTLE SALKEHATCHIE RVR	FW	6	0	0		6	0	0		6	0	0		6	0	0

SALKEHATCHIE RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	NI N	NI EXC.	NI %	MEAN EXC.	ZN N	ZN EXC.	ZN %	MEAN EXC.
03050207010											
CSTL-588	BIO	ROSEMARY CK	FW								
CSTL-578	BIO	BUCK CK	FW								
CSTL-028	P	SALKEHATCHIE RVR	FW	19	0	0		19	1	5	290
03050207020											
CSTL-056	BIO	TURKEY CK	FW								
CL-064	SS*	LAKE EDGAR BROWN	FW								
CSTL-001B	P*	TURKEY CK	FW	10	0	0		10	0	0	
03050207030											
CSTL-003	P	SALKEHATCHIE RVR	FW	19	0	0		19	0	0	
CSTL-577	BIO	TOBY CK	FW								
CSTL-579	BIO	BIRDS BRANCH	FW								
03050207040											
CSTL-048	SS	SALKEHATCHIE RVR	FW	7	0	0		7	0	0	
CSTL-053	BIO	SAVANNAH CK	FW								
CSTL-006	P	SALKEHATCHIE RVR	FW	21	0	0		20	0	0	
CSTL-104	SS	SALKEHATCHIE RVR	FW	7	0	0		7	0	0	
03050207050											
CSTL-051	BIO	JACKSON BRANCH	FW								
CSTL-076	SS	WHIPPY SWAMP	FW	7	0	0		7	0	0	
03050207060											
CSTL-566	BIO	LITTLE SALKEHATCHIE RVR	FW								
CSTL-115	SS	LITTLE SALKEHATCHIE RVR	FW	8	0	0		8	0	0	
03050207070											
CSTL-576	BIO	LEMON CK	FW*								
CSTL-116	SS	LEMON CK	FW*	8	0	0		8	1	13	370
03050207080											
CSTL-117	SS	LITTLE SALKEHATCHIE RVR	FW	6	0	0		6	0	0	
03050207090											
CSTL-119	SS	BUCKHEAD CK	FW	5	0	0		5	0	0	
03050207100											
CSTL-118	SS	WILLOW SWAMP	FW	6	0	0		6	0	0	
03050207110											
CSTL-120	SS	LITTLE SALKEHATCHIE RVR	FW	6	0	0		6	0	0	

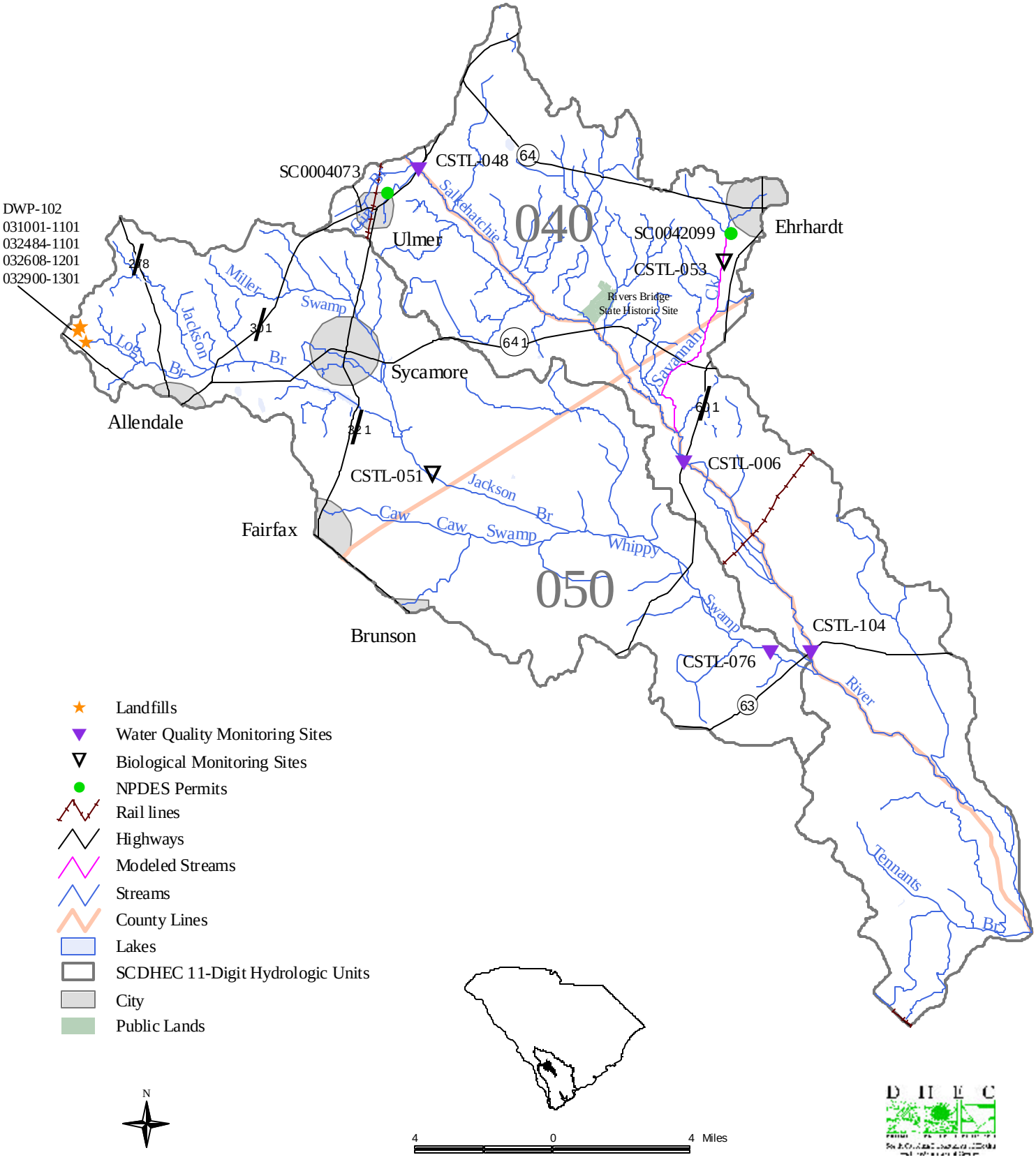
Salkehatchie River Basin
Watershed Unit Index Map



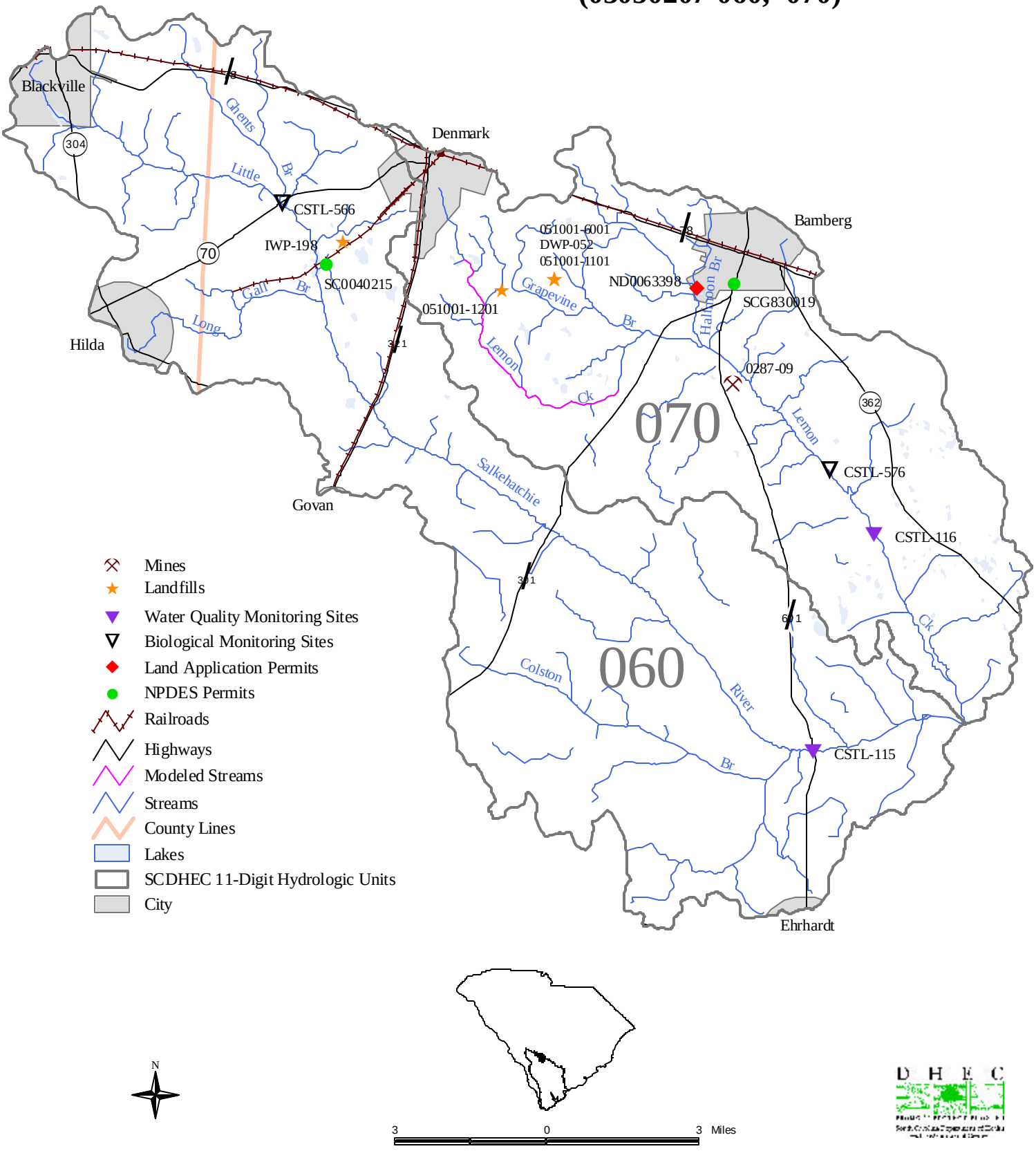

Salkehatchie River and
Turkey Creek Watersheds
(03050207-010, -020, -030)
Williston
ND0063061
Elko
020
Blackville
Barnwell State Park
061001-6001
DWP-001
061001-1101
061001-1201
CSTL-056
CSTL-588
CSTL-578
Savannah River Site
Rosemary Ck
Buck Ck
Turkey Ck
Toby Ck
010
Salkehatchie
Hilda
Lake Brown
CL-064
CSTL-028
CSTL-577
CSTL-001B
SC0003093
Snelling
Barnwell
Govan
CSTL-003
SC0047872
Ck
Br
Qlar
River
Georges
CSTL-579
Birds
030
Kline
Wells
Br
Landfills
Water Quality Monitoring Sites
Biological Monitoring Sites
Land Application Permits
NPDES Permits
Rail lines
Highways
Modeled Streams
Streams
County Lines
Lakes
SCDHEC 11-Digit Hydrologic Units
City
Government Reservation
Public Lands
N
2 0 2 Miles

Salkehatchie River and Whippy Swamp Watershed

(03050207-040, -050)

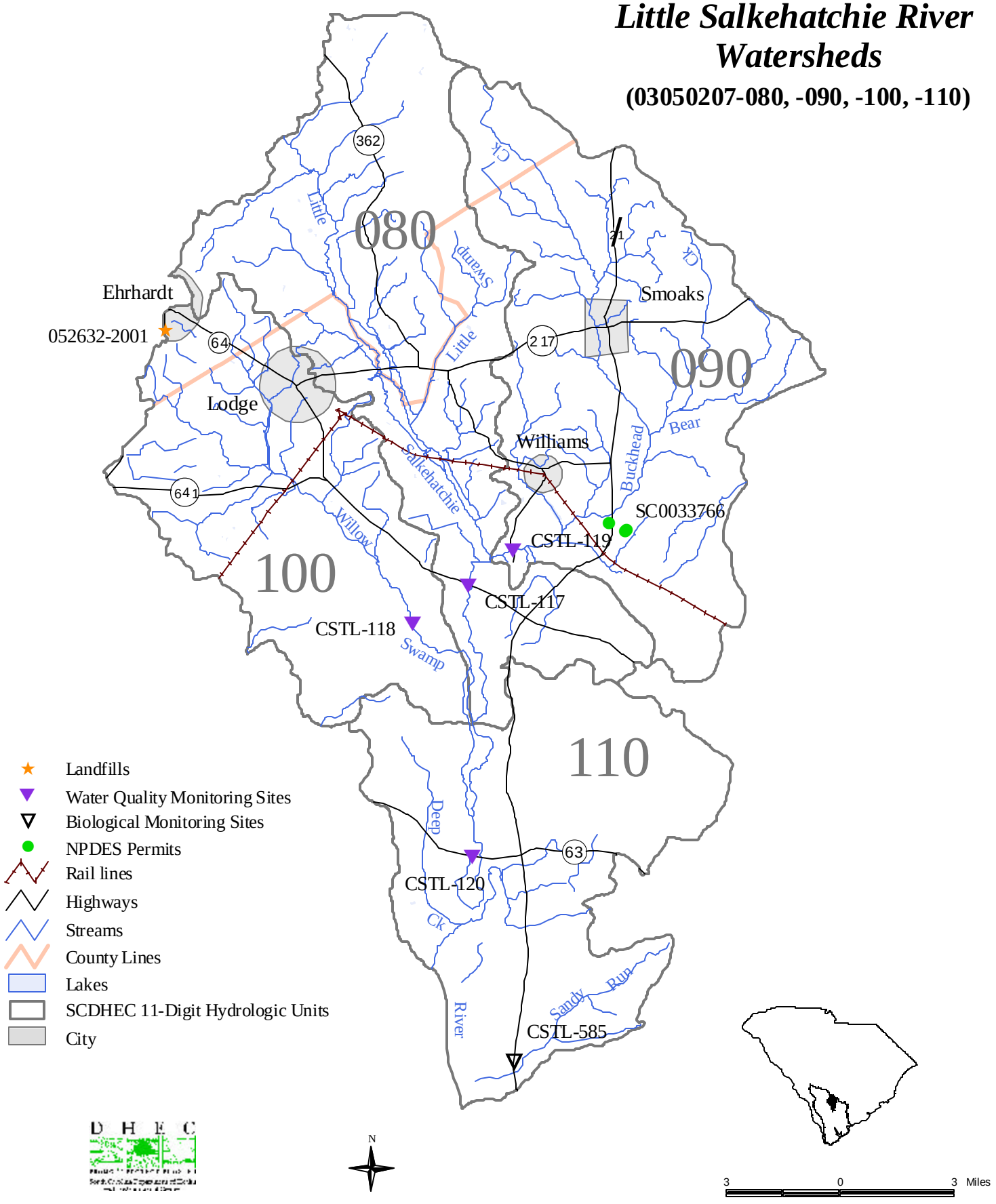


Little Salkehatchie River and Lemon Creek Watersheds
(03050207-060, -070)



Buckhead Creek, Willow Swamp, and Little Salkehatchie River Watersheds

(03050207-080, -090, -100, -110)



APPENDIX C.

Combahee/Ashepoo/Broad River Basin

Ambient Water Quality Monitoring Site Descriptions

Station #	Type	Class	Description
03050208-010			
CSTL-583	BIO	FW	Black Creek at US 21
CSTL-098	P	FW/SFH	Combahee River at US 17, 10mi ESE of Yemassee
CSTL-111	S	FW	Combahee River below Yemassee sewage outfall
03050208-020			
CSTL-044	S/BIO	FW	Ireland Creek at S-15-116, 5.5mi N of Walterboro
CSTL-584	BIO	FW	Bluehouse Swamp at S-15-41
03050208-030			
CSTL-581	BIO	FW	Fuller Swamp Creek at US 17A
CSTL-580	BIO	FW	Chessey Creek at S-15-45
CSTL-071	W	FW	Horseshoe Creek at SC 64
03050208-040			
CSTL-068	P	FW/SFH	Ashepoo River at SC 303, 10mi SSW of Walterboro
CSTL-069	S	SFH	Ashepoo River at US 17, 3.4mi ESE of Green Pond
MD-251	W	SFH	Ashepoo River at S-15-26
03050208-050			
CSTL-110	P	FW	Coosawhatchie River at S-03-47
CSTL-540	BIO	FW	Coosawhatchie River at S-03-350
CSTL-121	W	FW	Coosawhatchie River at SC 363
03050208-060			
CL-062	W	FW	Lake Warren in forebay near dam
CSTL-075	S	FW	Lake Warren, black creek arm, at S-25-41, 5mi SW of Hampton
03050208-070			
CSTL-108	S	FW*	Sanders Branch at SC 363
CSTL-010	S	FW*	Sanders Branch at SC 278
CSTL-011	S/BIO	FW*	Sanders Branch at S-25-50
CSTL-109	P	FW	Coosawhatchie River at S-25-27, 2.5mi SW of Cummings
CSTL-107	P	FW/SFH	Coosawhatchie River at US 17 at Coosawhatchie
MD-128	S	SB	Bees Creek at SC 462, 5.9mi NE of Ridgeland
03050208-080			
CSTL-582	BIO	FW	Cypress Creek at SC 3
CSTL-122	W	FW	Cypress Creek at S-27-108
03050208-090			
MD-007	P	SFH	Pocotaligo River at US 17 at Pocotaligo
MD-116	P	SFH	Broad River at SC 170, 7.5mi SW of Beaufort
MD-172	S	SFH	Broad River at mouth of Archer Creek on SW side of USMC
MD-117	S	SFH	Chechessee River at SC 170, 10.5mi SW of Beaufort
MD-176	W	ORW	Colleton River at Colleton Neck at jct with Chechessee River
MD-245	P	ORW	Colleton River near mouth (shellfish station 18-5)
MD-006	S	SFH	Port Royal between buoy 25&24, W of Bay Point Island
MD-001	S	SA	Beaufort River above Beaufort at channel marker 231
MD-002	S	SA	Beaufort River at drawbridge on US 21
Station #	**Type**	**Class**	**Description**

03050208-090 (CONTINUED)

MD-003	P	SA	BEAUFORT RIVER BELOW BEAUFORT AT CHANNEL MARKER 244
MD-004	S	SFH	BEAUFORT RIVER AT JUNCTION WITH BATTERY CREEK NEAR MARKER 42
MD-005	P	SFH	BEAUFORT RIVER BELOW OUTFALL OF PARRIS IS. MARINE BASE AT BUOY 29
MD-013	S	SFH	MOUTH OF SKULL CREEK BETWEEN CHANNEL MARKERS 3 & 4 NEAR REDBO

03050208-100

MD-194	S	SFH	WHALE BRANCH AT JUNCTION WITH CAMPBELL CREEK, ¾ MI W OF MD-010
MD-168	P	SFH	COOSAW RIVER AT CONFLUENCE OF COMBAHEE RIVER, NEAR BUOY 186

03050208-110

MD-016	W	ORW/SFH	MOUTH OF MAY RIVER, 1.0MI W OF CHANNEL MARKER 29
MD-174	P	SFH	BROAD CREEK OPPOSITE END OF S-07-80
MD-175	P	SFH	CALIBOGUE SOUND AT MOUTH OF COOPER RIVER NEAR RED BUOY 32

03050208-120

MD-129	W	FW	GREAT SWAMP AT US 17

03050208-130

MD-118	P	SA	NEW RIVER AT SC 170, 9MI W OF BLUFFTON

03050208-140

THERE ARE NO WATER QUALITY MONITORING STATIONS IN THIS WATERSHED.

For further details concerning sampling frequency and parameters sampled, please visit our website at *www.scdhec.net/eqc/admin/html/eqcpubs.html#wqreports* for the current State of S.C. Monitoring Strategy.

Water Quality Data

Spreadsheet Legend

Station Information:

STATION NUMBER Station ID

TYPE SCDHEC station type code

- P = Primary station, sampled monthly all year round
- S = Secondary station, sampled monthly May - October
- P* = Secondary station upgraded to primary station parameter coverage and sampling frequency for basin study
- W = Special watershed station added for the Salkehatchie River Basin study
- BIO = Indicates macroinvertebrate community data assessed

WATERBODY NAME Stream or Lake Name

CLASS Stream classification at the point where monitoring station is located

Parameter Abbreviations and Parameter Measurement Units:

DO	Dissolved Oxygen (mg/l)	NH3	Ammonia (mg/l)
BOD	Five-Day Biochemical Oxygen Demand (mg/l)	CD	Cadmium (ug/l)
		CR	Chromium (ug/l)
pH	pH (SU)	CU	Copper (ug/l)
TP	Total Phosphorus (mg/l)	PB	Lead (ug/l)
TN	Total Nitrogen (mg/l)	HG	Mercury (ug/l)
TURB	Turbidity (NTU)	NI	Nickel (ug/l)
TSS	Total Suspended Solids (mg/l)	ZN	Zinc (ug/l)
BACT	Fecal Coliform Bacteria (#/100 ml)		

Statistical Abbreviations:

N For standards compliance, number of surface samples collected between January 1996 and December 2000. For trends, number of surface samples collected between January 1984 and December 2000. For total phosphorus, an additional trend period of January 1992 to December 2000 is also reported.

EXC. Number of samples contravening the appropriate standard

% Percentage of samples contravening the appropriate standard

MEAN EXC. Mean of samples that contravened the applied standard

MED For heavy metals with a human health criterion, this is the median of all surface samples between January 1996 and December 2000. DL indicates that the median was the detection limit.

MAG Magnitude of any statistically significant trend, average change per year, expressed in parameter measurement units.

GEO MEAN Geometric mean of fecal coliform bacteria samples collected between January 1996 and December 2000.

Key to Trends:

D	Statistically significant decreasing trend in parameter concentration
I	Statistically significant increasing trend in parameter concentration
*	No statistically significant trend
Blank	Insufficient data to test for long-term trends

COMBAHEE RIVER/ASHEPOO RIVER/BROAD RIVER BASINS WATER QUALITY SUMMARY

STATION				DO	DO	DO	MEAN	TRENDS (86 -2000)					
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	DO	N	MAG	BOD	N	MAG
03050208010													
CSTL-585	BIO	SANDY RUN CK	FW										
CSTL-583	BIO	BLACK CK	FW										
CSTL-111	S	COMBAHEE RVR	FW	24	12	50	4.498	*	41	-0.051	D	41	-0.152
CSTL-584	BIO	REMICK SWAMP CK	FW										
CSTL-098	P	COMBAHEE RVR	FW/SFH	57	16	28	3.937	D	169	-0.050	D	166	-0.071
CSTL-098	P	COMBAHEE RVR	FW/SFH	57	16	28	3.937	D	169	-0.050	D	166	-0.071
03050208020													
CSTL-044	S/BIO	IRELAND CK	FW	25	3	12	2.070	*	74	0.085	D	70	-0.127
03050208030													
CSTL-581	BIO	FULLER SWAMP CK	FW										
CSTL-580	BIO	CHESSEY CK	FW										
CSTL-071	SS	HORSESHOE CK	FW	22	11	50	3.818						
03050208040													
CSTL-068	P	ASHEPOO RVR	FW/SFH	56	27	48	3.409	*	128	0.000	D	127	-0.050
CSTL-068	P	ASHEPOO RVR	FW/SFH	56	27	48	3.409	*	128	0.000	D	127	-0.050
CSTL-069	S	ASHEPOO RVR	SFH	25	19	76	3.361	D	74	-0.099	D	73	-0.110
MD-251	SS	ASHEPOO RVR	SFH	23	6	26	4.345						
03050208050													
CSTL-110	P	COOSAWHATCHIE RVR	FW	61	8	13	3.913	D	124	-0.151	D	122	-0.082
CSTL-540	BIO	COOSAWATCHIE RIVER	FW										
CSTL-121	SS	COOSAWHATCHIE RVR	FW	23	9	39	2.443						
03050208060													
CSTL-075	P*	LAKE WARREN	FW	35	17	49	2.831	*	85	-0.087	D	84	-0.120
CL-062	SS*	LAKE WARREN	FW	9	2	22	4.465						
03050208070													
CSTL-108	S	SANDERS BRANCH	FW*	24	1	4	3.90	*	70	0.025	D	69	-0.217
CSTL-010	S	SANDERS BRANCH	FW*	24	1	4	3.91	*	72	-0.027	D	72	-0.115
CSTL-011	S/BIO	SANDERS BRANCH	FW*	25	3	12	2.900	I	74	0.072	D	71	-0.200
CSTL-109	P	COOSAWHATCHIE RVR	FW	61	29	48	3.822	D	177	-0.063	D	174	-0.040
CSTL-107	P	COOSAWHATCHIE RVR	FW/SFH	57	10	18	4.091	D	171	-0.052	D	169	-0.057
CSTL-107	P	COOSAWHATCHIE RVR	FW/SFH	57	10	18	4.091	D	171	-0.052	D	169	-0.057
MD-128	S	BEES CK	SB	23	5	22	3.250	D	70	-0.070	D	72	-0.100
03050208080													
CSTL-582	BIO	CYPRESS CK AT SC 3	FW										
CSTL-122	SS	CYPRESS CK	FW	23	11	48	2.025						

COMBAHEE RIVER/ASHEPOO RIVER/BROAD RIVER BASINS WATER QUALITY SUMMARY

STATION				pH	pH	pH	MEAN	TRENDS (86-2000)			TURB	TURB	TURB	MEAN	TRENDS (86-2000)		
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	PH	N	MAG	N	EXC.	%	EXC.	TURB	N	MAG
03050208010																	
CSTL-585	BIO	SANDY RUN CK	FW														
CSTL-583	BIO	BLACK CK	FW														
CSTL-111	S	COMBAHEE RVR	FW	24	3	13	5.737	*	41	-0.025	23	0	0		D	40	-0.193
CSTL-584	BIO	REMICK SWAMP CK	FW														
CSTL-098	P	COMBAHEE RVR	FW/SFH	57	1	2	4.60	*	170	0.003	54	1	2	70	I	164	0.101
CSTL-098	P	COMBAHEE RVR	FW/SFH	57	9	16	6.079	*	170	0.003	54	1	2	70	I	164	0.101
03050208020																	
CSTL-044	S/BIO	IRELAND CK	FW	25	15	60	5.142	*	74	0.025	23	1	4	180	*	71	-0.144
03050208030																	
CSTL-581	BIO	FULLER SWAMP CK	FW														
CSTL-580	BIO	CHESSEY CK	FW														
CSTL-071	SS	HORSESHOE CK	FW	22	9	41	5.514				21	0	0				
03050208040																	
CSTL-068	P	ASHEPOO RVR	FW/SFH	57	28	49	5.491	I	129	0.047	54	0	0		*	126	0.029
CSTL-068	P	ASHEPOO RVR	FW/SFH	57	51	89	5.811	I	129	0.047	54	0	0		*	126	0.029
CSTL-069	S	ASHEPOO RVR	SFH	25	20	80	5.988	*	74	-0.016	24	0	0		*	73	-0.053
MD-251	SS	ASHEPOO RVR	SFH	23	4	17	5.943				22	9	41	44.6			
03050208050																	
CSTL-110	P	COOSAWHATCHIE RVR	FW	61	3	5	7.703	*	124	0.000	61	0	0		D	123	-0.256
CSTL-540	BIO	COOSAWATCHIE RIVER	FW														
CSTL-121	SS	COOSAWHATCHIE RVR	FW	23	0	0					23	1	4	70			
03050208060																	
CSTL-075	P*	LAKE WARREN	FW	35	9	26	5.649	I	85	0.044	35	0	0		*	85	-0.008
CL-062	SS*	LAKE WARREN	FW	9	0	0					5	0	0				
03050208070																	
CSTL-108	S	SANDERS BRANCH	FW*	24	0	0		I	69	0.059	23	0	0		*	69	-0.083
CSTL-010	S	SANDERS BRANCH	FW*	23	0	0		I	71	0.044	23	0	0		*	71	0.054
CSTL-011	S/BIO	SANDERS BRANCH	FW*	25	0	0		I	74	0.035	24	0	0		*	73	0.075
CSTL-109	P	COOSAWHATCHIE RVR	FW	61	10	16	5.441	I	177	0.017	58	0	0		D	172	-0.119
CSTL-107	P	COOSAWHATCHIE RVR	FW/SFH	56	2	4	5.685	I	171	0.043	56	0	0		I	168	0.090
CSTL-107	P	COOSAWHATCHIE RVR	FW/SFH	56	16	29	6.220	I	171	0.043	56	1	2	50	I	168	0.090
MD-128	S	BEES CK	SB	24	6	25	5.995	*	72	0.004	24	2	8	27.0	*	72	0.000
03050208080																	
CSTL-582	BIO	CYPRESS CK AT SC 3	FW														
CSTL-122	SS	CYPRESS CK	FW	23	16	70	5.478				23	0	0				

COMBAHEE RIVER/ASHEPOO RIVER/BROAD RIVER BASINS WATER QUALITY SUMMARY

STATION				TP	TP	TP	MEAN	TRENDS (92-2000)			TRENDS (86-2000)		
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	TP	N	MAG	TP	N	MAG
03050208010													
CSTL-585	BIO	SANDY RUN CK	FW										
CSTL-583	BIO	BLACK CK	FW										
CSTL-111	S	COMBAHEE RVR	FW										
CSTL-584	BIO	REMICK SWAMP CK	FW										
CSTL-098	P	COMBAHEE RVR	FW/SFH					*	72	0.000	D	135	-0.001
CSTL-098	P	COMBAHEE RVR	FW/SFH					*	72	0.000	D	135	-0.001
03050208020													
CSTL-044	S/BIO	IRELAND CK	FW								D	60	-0.007
03050208030													
CSTL-581	BIO	FULLER SWAMP CK	FW										
CSTL-580	BIO	CHESSEY CK	FW										
CSTL-071	SS	HORSESHOE CK	FW										
03050208040													
CSTL-068	P	ASHEPOO RVR	FW/SFH					*	68	0.004	*	96	0.000
CSTL-068	P	ASHEPOO RVR	FW/SFH					*	68	0.004	*	96	0.000
CSTL-069	S	ASHEPOO RVR	SFH					*	30	0.000	*	59	-0.001
MD-251	SS	ASHEPOO RVR	SFH										
03050208050													
CSTL-110	P	COOSAWHATCHIE RVR	FW					*	74	0.000	*	90	-0.002
CSTL-540	BIO	COOSAWATCHIE RIVER	FW										
CSTL-121	SS	COOSAWHATCHIE RVR	FW										
03050208060													
CSTL-075	P*	LAKE WARREN	FW	14	1	7	0.24	*	32	-0.003	*	60	-0.002
CL-062	SS*	LAKE WARREN	FW										
03050208070													
CSTL-108	S	SANDERS BRANCH	FW*								D	57	-0.002
CSTL-010	S	SANDERS BRANCH	FW*								*	58	0.000
CSTL-011	S/BIO	SANDERS BRANCH	FW*								D	58	-0.029
CSTL-109	P	COOSAWHATCHIE RVR	FW					D	71	-0.004	D	136	-0.002
CSTL-107	P	COOSAWHATCHIE RVR	FW/SFH					*	70	-0.001	D	136	-0.002
CSTL-107	P	COOSAWHATCHIE RVR	FW/SFH					*	70	-0.001	D	136	-0.002
MD-128	S	BEES CK	SB					*	31	-0.005	D	57	-0.004
03050208080													
CSTL-582	BIO	CYPRESS CK AT SC 3	FW										
CSTL-122	SS	CYPRESS CK	FW										

COMBAHEE RIVER/ASHEPOO RIVER/BROAD RIVER BASINS WATER QUALITY SUMMARY

STATION				TN	TN	TN	MEAN	TRENDS (86-2000)			CHL	CHL	CHL	MEAN	TRENDS (86-2000)		
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	TN	N	MAG	N	EXC.	%	EXC.	TSS	N	MAG
03050208010																	
CSTL-585	BIO	SANDY RUN CK	FW														
CSTL-583	BIO	BLACK CK	FW														
CSTL-111	S	COMBAHEE RVR	FW														
CSTL-584	BIO	REMICK SWAMP CK	FW														
CSTL-098	P	COMBAHEE RVR	FW/SFH					D	163	-0.019					*	150	0.154
CSTL-098	P	COMBAHEE RVR	FW/SFH					D	163	-0.019					*	150	0.154
03050208020																	
CSTL-044	S/BIO	IRELAND CK	FW														
03050208030																	
CSTL-581	BIO	FULLER SWAMP CK	FW														
CSTL-580	BIO	CHESSEY CK	FW														
CSTL-071	SS	HORSESHOE CK	FW														
03050208040																	
CSTL-068	P	ASHEPOO RVR	FW/SFH					D	95	-0.022							
CSTL-068	P	ASHEPOO RVR	FW/SFH					D	95	-0.022							
CSTL-069	S	ASHEPOO RVR	SFH														
MD-251	SS	ASHEPOO RVR	SFH														
03050208050																	
CSTL-110	P	COOSAWHATCHIE RVR	FW					D	118	-0.017							
CSTL-540	BIO	COOSAWATCHIE RIVER	FW														
CSTL-121	SS	COOSAWHATCHIE RVR	FW														
03050208060																	
CSTL-075	P*	LAKE WARREN	FW	21	1	5	1.94										
CL-062	SS*	LAKE WARREN	FW	6	0	0					9	0	0				
03050208070																	
CSTL-108	S	SANDERS BRANCH	FW*														
CSTL-010	S	SANDERS BRANCH	FW*														
CSTL-011	S/BIO	SANDERS BRANCH	FW*														
CSTL-109	P	COOSAWHATCHIE RVR	FW					D	165	-0.012					D	159	-0.104
CSTL-107	P	COOSAWHATCHIE RVR	FW/SFH					D	163	-0.020							
CSTL-107	P	COOSAWHATCHIE RVR	FW/SFH					D	163	-0.020							
MD-128	S	BEES CK	SB														
03050208080																	
CSTL-582	BIO	CYPRESS CK AT SC 3	FW														
CSTL-122	SS	CYPRESS CK	FW														

COMBAHEE RIVER/ASHEPOO RIVER/BROAD RIVER BASINS WATER QUALITY SUMMARY

STATION				GEO	BACT	BACT	BACT	MEAN	TRENDS (86-2000)			NH3	NH3	NH3	CD	CD	CD	MEAN
NUMBER	TYPE	WATERBODY NAME	CLASS	MEAN	N	EXC.	%	EXC.	BACT	N	MAG	N	EXC.	%	N	EXC.	%	EXC.
03050208010																		
CSTL-585	BIO	SANDY RUN CK	FW															
CSTL-583	BIO	BLACK CK	FW															
CSTL-111	S	COMBAHEE RVR	FW	84	24	0	0		*	41	0.000	1	0	0				
CSTL-584	BIO	REMICK SWAMP CK	FW															
CSTL-098	P	COMBAHEE RVR	FW/SFH	28	56	0	0		D	162	-0.751	56	0	0	19	0	0	
CSTL-098	P	COMBAHEE RVR	FW/SFH	28	56	0	0		D	162	-0.751	56	0	0	19	0	0	
03050208020																		
CSTL-044	S/BIO	IRELAND CK	FW	291	25	9	36	1881	*	72	7.415							
03050208030																		
CSTL-581	BIO	FULLER SWAMP CK	FW															
CSTL-580	BIO	CHESSEY CK	FW															
CSTL-071	SS	HORSESHOE CK	FW	88	20	2	10	900				20	0	0	6	0	0	
03050208040																		
CSTL-068	P	ASHEPOO RVR	FW/SFH	181	55	9	16	668	*	124	5.387	55	0	0	18	0	0	
CSTL-068	P	ASHEPOO RVR	FW/SFH	181	55	9	16	668	*	124	5.387	55	0	0	18	0	0	
CSTL-069	S	ASHEPOO RVR	SFH	127	25	2	8	4220	*	72	1.483							
MD-251	SS	ASHEPOO RVR	SFH	58	23	1	4	1600				20	0	0	7	0	0	
03050208050																		
CSTL-110	P	COOSAWHATCHIE RVR	FW	78	61	3	5	507	*	123	-4.964	57	0	0	20	0	0	
CSTL-540	BIO	COOSAWATCHIE RIVER	FW															
CSTL-121	SS	COOSAWHATCHIE RVR	FW	145	23	2	9	540				20	0	0	8	0	0	
03050208060																		
CSTL-075	P*	LAKE WARREN	FW	15	35	0	0		*	83	0.284	20	0	0	8	0	0	
CL-062	SS*	LAKE WARREN	FW	5	5	1	20	430				6	0	0				
03050208070																		
CSTL-108	S	SANDERS BRANCH	FW*	231	24	10	42	742	*	68	2.088							
CSTL-010	S	SANDERS BRANCH	FW*	157	24	5	21	644	*	69	1.568	2	0	0	10	0	0	
CSTL-011	S/BIO	SANDERS BRANCH	FW*	341	25	12	48	1593	*	72	-4.771							
CSTL-109	P	COOSAWHATCHIE RVR	FW	81	61	4	7	880	D	171	-8.932	57	0	0	22	0	0	
CSTL-107	P	COOSAWHATCHIE RVR	FW/SFH	96	58	2	3	594	D	168	-6.755	51	0	0	19	0	0	
CSTL-107	P	COOSAWHATCHIE RVR	FW/SFH	96	58	2	3	594	D	168	-6.755	51	0	0	19	0	0	
MD-128	S	BEES CK	SB	153	24	5	21	960	*	70	-6.383							
03050208080																		
CSTL-582	BIO	CYPRESS CK AT SC 3	FW															
CSTL-122	SS	CYPRESS CK	FW	152	23	4	17	550				19	0	0	7	0	0	

COMBAHEE RIVER/ASHEPOO RIVER/BROAD RIVER BASINS WATER QUALITY SUMMARY

STATION				CR	CR	CR	MEAN	CU	CU	CU	MEAN	PB	PB	PB	MEAN	HG	HG	HG
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	N	EXC.	%	EXC.	N	EXC.	%	EXC.	N	EXC.	%
03050208010																		
CSTL-585	BIO	SANDY RUN CK	FW															
CSTL-583	BIO	BLACK CK	FW															
CSTL-111	S	COMBAHEE RVR	FW															
CSTL-584	BIO	REMICK SWAMP CK	FW															
CSTL-098	P	COMBAHEE RVR	FW/SFH	19	0	0		19	0	0		19	0	0		19	0	0
CSTL-098	P	COMBAHEE RVR	FW/SFH	19	0	0		19	0	0		19	0	0		19	0	0
03050208020																		
CSTL-044	S/BIO	IRELAND CK	FW															
03050208030																		
CSTL-581	BIO	FULLER SWAMP CK	FW															
CSTL-580	BIO	CHESSEY CK	FW															
CSTL-071	SS	HORSESHOE CK	FW	6	0	0		6	0	0		6	0	0		6	0	0
03050208040																		
CSTL-068	P	ASHEPOO RVR	FW/SFH	18	0	0		18	0	0		18	1	6	400	18	0	0
CSTL-068	P	ASHEPOO RVR	FW/SFH	18	0	0		18	0	0		18	1	6	400	18	0	0
CSTL-069	S	ASHEPOO RVR	SFH															
MD-251	SS	ASHEPOO RVR	SFH	7	0	0		7	0	0		7	0	0		7	0	0
03050208050																		
CSTL-110	P	COOSAWHATCHIE RVR	FW	20	0	0		20	0	0		20	0	0		20	0	0
CSTL-540	BIO	COOSAWATCHIE RIVER	FW															
CSTL-121	SS	COOSAWHATCHIE RVR	FW	8	0	0		8	0	0		8	0	0		8	0	0
03050208060																		
CSTL-075	P*	LAKE WARREN	FW	8	0	0		8	0	0		8	0	0		8	0	0
CL-062	SS*	LAKE WARREN	FW															
03050208070																		
CSTL-108	S	SANDERS BRANCH	FW*															
CSTL-010	S	SANDERS BRANCH	FW*	9	0	0		10	1	10	30	10	0	0		10	0	0
CSTL-011	S/BIO	SANDERS BRANCH	FW*															
CSTL-109	P	COOSAWHATCHIE RVR	FW	22	0	0		22	0	0		22	0	0		22	0	0
CSTL-107	P	COOSAWHATCHIE RVR	FW/SFH	19	1	5	80	19	1	5	20	19	0	0		19	0	0
CSTL-107	P	COOSAWHATCHIE RVR	FW/SFH	19	0	0		19	1	5	20	19	0	0		19	0	0
MD-128	S	BEES CK	SB															
03050208080																		
CSTL-582	BIO	CYPRESS CK AT SC 3	FW															
CSTL-122	SS	CYPRESS CK	FW	7	0	0		7	0	0		7	0	0		7	0	0

COMBAHEE RIVER/ASHEPOO RIVER/BROAD RIVER BASINS WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	NI N	NI EXC.	NI %	MEAN EXC.	ZN N	ZN EXC.	ZN %	MEAN EXC.
03050208010											
CSTL-585	BIO	SANDY RUN CK	FW								
CSTL-583	BIO	BLACK CK	FW								
CSTL-111	S	COMBAHEE RVR	FW								
CSTL-584	BIO	REMICK SWAMP CK	FW								
CSTL-098	P	COMBAHEE RVR	FW/SFH	19	0	0		19	0	0	
CSTL-098	P	COMBAHEE RVR	FW/SFH	19	0	0		19	0	0	
03050208020											
CSTL-044	S/BIO	IRELAND CK	FW								
03050208030											
CSTL-581	BIO	FULLER SWAMP CK	FW								
CSTL-580	BIO	CHESSEY CK	FW								
CSTL-071	SS	HORSESHOE CK	FW	6	0	0		6	0	0	
03050208040											
CSTL-068	P	ASHEPOO RVR	FW/SFH	18	0	0		18	0	0	
CSTL-068	P	ASHEPOO RVR	FW/SFH	18	0	0		18	0	0	
CSTL-069	S	ASHEPOO RVR	SFH								
MD-251	SS	ASHEPOO RVR	SFH	7	0	0		7	0	0	
03050208050											
CSTL-110	P	COOSAWHATCHIE RVR	FW	20	0	0		20	0	0	
CSTL-540	BIO	COOSAWATCHIE RIVER	FW								
CSTL-121	SS	COOSAWHATCHIE RVR	FW	8	0	0		8	0	0	
03050208060											
CSTL-075	P*	LAKE WARREN	FW	8	0	0		8	0	0	
CL-062	SS*	LAKE WARREN	FW								
03050208070											
CSTL-108	S	SANDERS BRANCH	FW*								
CSTL-010	S	SANDERS BRANCH	FW*	10	0	0		10	0	0	
CSTL-011	S/BIO	SANDERS BRANCH	FW*								
CSTL-109	P	COOSAWHATCHIE RVR	FW	22	0	0		22	1	5	120
CSTL-107	P	COOSAWHATCHIE RVR	FW/SFH	19	0	0		19	1	5	90
CSTL-107	P	COOSAWHATCHIE RVR	FW/SFH	19	0	0		19	0	0	
MD-128	S	BEES CK	SB								
03050208080											
CSTL-582	BIO	CYPRESS CK AT SC 3	FW								
CSTL-122	SS	CYPRESS CK	FW	7	0	0		7	0	0	

COMBAHEE RIVER/ASHEPOO RIVER/BROAD RIVER BASINS WATER QUALITY SUMMARY

STATION				DO	DO	DO	MEAN	TRENDS (86 -2000)					
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	DO	N	MAG	BOD	N	MAG
03050208090													
MD-007	P	POCOTALIGO RVR	SFH	56	22	39	3.862	D	169	-0.034	D	166	-0.066
MD-116	P	BROAD RVR	SFH	58	1	2	4.40	*	126	0.000	D	120	-0.058
MD-172	S	BROAD RVR	SFH	28	7	25	4.611	D	73	-0.075	D	68	-0.071
MD-117	S	CHECHESSEE RVR	SFH	29	9	31	4.330	D	73	-0.040	D	67	-0.065
MD-176	SS	COLLETON RVR	ORW	19	3	16	4.447	D	48	-0.051	D	44	-0.063
MD-245	P	COLLETON RVR	ORW	60	5	8	4.658	D	101	-0.050	D	95	-0.098
MD-013	S	SKULL CK	SFH	27	4	15	4.248	*	76	-0.012	D	70	-0.060
MD-001	S	BEAUFORT RVR	SA	29	12	41	4.334	D	76	-0.051	D	69	-0.048
MD-002	S	BEAUFORT RVR	SA	30	8	27	4.345	*	77	0.000	D	70	-0.040
MD-003	P	BEAUFORT RVR	SA	58	7	12	4.620	*	130	0.000	D	121	-0.060
MD-004	S	BEAUFORT RVR	SFH	28	3	11	3.767	*	77	0.000	D	70	-0.050
MD-005	P	BEAUFORT RVR	SFH	55	2	4	4.350	*	131	0.000	D	118	-0.029
MD-006	S	PORT ROYAL SOUND	SFH	29	1	3	4.50	*	77	0.014	D	68	-0.022
03050208100													
MD-194	S*	WHALE BRANCH	SFH	13	4	31	4.073	*	46	-0.095	*	42	-0.066
MD-168	P	COOSAW RVR	SFH	52	5	10	4.628	*	96	0.030	D	90	-0.132
03050208110													
MD-016	SS	MAY RVR	ORW/SFH	20	2	10	4.660	*	50	-0.020	D	46	-0.060
MD-174	P	BROAD CK	SFH	56	10	18	4.430	*	95	-0.060	D	92	-0.099
MD-175	P	CALIBOGUE SOUND	SFH	60	1	2	4.92	*	129	-0.010	D	121	-0.050
03050208120													
MD-129	SS	GREAT SWAMP	FW	23	14	61	2.890						
03050208130													
MD-118	P	NEW RVR	SA	56	21	38	4.025	*	170	0.010	D	169	-0.080

COMBAHEE RIVER/ASHEPOO RIVER/BROAD RIVER BASINS WATER QUALITY SUMMARY

STATION				pH	pH	pH	MEAN	TRENDS (86-2000)			TURB	TURB	TURB	MEAN	TRENDS (86-2000)		
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	PH	N	MAG	N	EXC.	%	EXC.	TURB	N	MAG
03050208090																	
MD-007	P	POCOTALIGO RVR	SFH	55	5	9	6.196	I	169	0.014	54	14	26	54.7	D	165	-0.762
MD-116	P	BROAD RVR	SFH	58	0	0		*	128	0.000	55	1	2	28	*	122	0.000
MD-172	S	BROAD RVR	SFH	28	0	0		*	73	-0.005	24	0	0		*	69	0.082
MD-117	S	CHECHESSEE RVR	SFH	29	0	0		*	74	-0.010	24	0	0		I	68	0.177
MD-176	SS	COLLETON RVR	ORW	19	0	0		*	48	-0.014	17	0	0		*	45	-0.057
MD-245	P	COLLETON RVR	ORW	61	0	0		*	104	0.000	54	0	0		*	96	0.072
MD-013	S	SKULL CK	SFH	27	1	4	6.24	D	77	-0.014	25	1	4	29	*	72	0.177
MD-001	S	BEAUFORT RVR	SA	29	0	0		D	77	-0.020	23	0	0		*	69	0.105
MD-002	S	BEAUFORT RVR	SA	30	0	0		D	79	-0.008	24	0	0		*	70	0.127
MD-003	P	BEAUFORT RVR	SA	60	3	5	4.140	D	134	-0.010	53	1	2	35	I	123	0.199
MD-004	S	BEAUFORT RVR	SFH	27	0	0		*	76	-0.008	23	0	0		*	71	-0.028
MD-005	P	BEAUFORT RVR	SFH	57	0	0		D	133	-0.020	49	1	2	34	*	121	0.143
MD-006	S	PORT ROYAL SOUND	SFH	29	0	0		D	78	-0.013	23	1	4	33	*	68	0.050
03050208100																	
MD-194	S*	WHALE BRANCH	SFH	13	0	0		D	47	-0.023	10	1	10	27	*	43	0.096
MD-168	P	COOSAW RVR	SFH	55	0	0		*	100	0.007	48	2	4	28.0	*	91	0.000
03050208110																	
MD-016	SS	MAY RVR	ORW/SFH	20	0	0		*	50	-0.011	19	0	0		*	47	0.062
MD-174	P	BROAD CK	SFH	56	0	0		*	97	0.006	53	0	0		*	94	-0.014
MD-175	P	CALIBOGUE SOUND	SFH	61	0	0		*	132	0.000	55	2	4	31.0	*	123	0.061
03050208120																	
MD-129	SS	GREAT SWAMP	FW	21	18	86	5.047				23	0	0				
03050208130																	
MD-118	P	NEW RVR	SA	56	49	88	5.708	*	170	0.010	55	1	2	115	*	168	0.020

COMBAHEE RIVER/ASHEPOO RIVER/BROAD RIVER BASINS WATER QUALITY SUMMARY

STATION					TP	TP	TP	MEAN	TRENDS (92-2000)				TRENDS (86-2000)		
NUMBER	TYPE	WATERBODY NAME	CLASS		N	EXC.	%	EXC.	TP	N	MAG		TP	N	MAG
03050208090															
MD-007	P	POCOTALIGO RVR	SFH						*	74	0.000		*	138	-0.002
MD-116	P	BROAD RVR	SFH						*	66	0.000		D	92	-0.001
MD-172	S	BROAD RVR	SFH										*	56	0.000
MD-117	S	CHECHESSEE RVR	SFH										D	53	-0.001
MD-176	SS	COLLETON RVR	ORW										*	31	0.000
MD-245	P	COLLETON RVR	ORW						*	68	0.000		*	68	0.000
MD-013	S	SKULL CK	SFH										*	58	0.000
MD-001	S	BEAUFORT RVR	SA										*	57	0.000
MD-002	S	BEAUFORT RVR	SA						*	31	0.000		*	59	-0.001
MD-003	P	BEAUFORT RVR	SA						*	67	0.000		D	94	-0.001
MD-004	S	BEAUFORT RVR	SFH						*	31	0.000		D	61	-0.001
MD-005	P	BEAUFORT RVR	SFH						*	64	0.001		*	92	0.000
MD-006	S	PORT ROYAL SOUND	SFH										D	56	0.000
03050208100															
MD-194	S*	WHALE BRANCH	SFH										*	38	0.002
MD-168	P	COOSAW RVR	SFH						*	67	0.000		*	67	0.000
03050208110															
MD-016	SS	MAY RVR	ORW/SFH										*	33	0.000
MD-174	P	BROAD CK	SFH						*	65	0.003		*	65	0.003
MD-175	P	CALIBOGUE SOUND	SFH						*	66	0.000		D	92	-0.001
03050208120															
MD-129	SS	GREAT SWAMP	FW												
03050208130															
MD-118	P	NEW RVR	SA						*	73	0.000		D	138	-0.001

COMBAHEE RIVER/ASHEPOO RIVER/BROAD RIVER BASINS WATER QUALITY SUMMARY

STATION				TN	TN	TN	MEAN	TRENDS (86-2000)			CHL	CHL	CHL	MEAN	TRENDS (86-2000)		
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	TN	N	MAG	N	EXC.	%	EXC.	TSS	N	MAG
03050208090																	
MD-007	P	POCOTALIGO RVR	SFH					D	166	-0.028							
MD-116	P	BROAD RVR	SFH					D	95	-0.031							
MD-172	S	BROAD RVR	SFH														
MD-117	S	CHECHESSEE RVR	SFH														
MD-176	SS	COLLETON RVR	ORW														
MD-245	P	COLLETON RVR	ORW					D	96	-0.025							
MD-013	S	SKULL CK	SFH														
MD-001	S	BEAUFORT RVR	SA														
MD-002	S	BEAUFORT RVR	SA														
MD-003	P	BEAUFORT RVR	SA					*	95	-0.012							
MD-004	S	BEAUFORT RVR	SFH														
MD-005	P	BEAUFORT RVR	SFH					D	88	-0.022							
MD-006	S	PORT ROYAL SOUND	SFH														
03050208100																	
MD-194	S*	WHALE BRANCH	SFH														
MD-168	P	COOSAW RVR	SFH					D	90	-0.016							
03050208110																	
MD-016	SS	MAY RVR	ORW/SFH														
MD-174	P	BROAD CK	SFH					D	94	-0.020							
MD-175	P	CALIBOGUE SOUND	SFH					D	95	-0.018							
03050208120																	
MD-129	SS	GREAT SWAMP	FW														
03050208130																	
MD-118	P	NEW RVR	SA					D	164	-0.015							

COMBAHEE RIVER/ASHEPOO RIVER/BROAD RIVER BASINS WATER QUALITY SUMMARY

STATION				GEO	BACT	BACT	BACT	MEAN	TRENDS (86-2000)			NH3	NH3	NH3	CD	CD	CD	MEAN
NUMBER	TYPE	WATERBODY NAME	CLASS	MEAN	N	EXC.	%	EXC.	BACT	N	MAG	N	EXC.	%	N	EXC.	%	EXC.
03050208090																		
MD-007	P	POCOTALIGO RVR	SFH	240	57	19	33	1297	D	164	-25.010	52	0	0	19	0	0	
MD-116	P	BROAD RVR	SFH	3	55	0	0		*	122	0.000	33	0	0	20	0	0	
MD-172	S	BROAD RVR	SFH	3	23	0	0		*	67	0.000							
MD-117	S	CHECHESSEE RVR	SFH	3	23	0	0		*	67	0.000				1	0	0	
MD-176	SS	COLLETON RVR	ORW	2	17	0	0		D	45	0.000	10	0	0	16	0	0	
MD-245	P	COLLETON RVR	ORW	3	55	0	0		D	96	0.000	36	0	0	18	0	0	
MD-013	S	SKULL CK	SFH	2	25	0	0		*	72	0.000							
MD-001	S	BEAUFORT RVR	SA	6	23	0	0		*	70	0.000							
MD-002	S	BEAUFORT RVR	SA	4	24	0	0		*	70	0.000							
MD-003	P	BEAUFORT RVR	SA	3	52	0	0		*	121	0.000	37	0	0	21	0	0	
MD-004	S	BEAUFORT RVR	SFH	3	23	0	0		*	72	0.000	1	0	0	9	0	0	
MD-005	P	BEAUFORT RVR	SFH	2	48	0	0		D	120	0.000	37	0	0	19	0	0	
MD-006	S	PORT ROYAL SOUND	SFH	2	23	0	0		D	69	0.000							
03050208100																		
MD-194	S*	WHALE BRANCH	SFH	3	10	0	0		*	43	0.000	11	0	0	7	0	0	
MD-168	P	COOSAW RVR	SFH	2	45	0	0		D	87	0.000	39	0	0	19	0	0	
03050208110																		
MD-016	SS	MAY RVR	ORW/SFH	2	18	0	0		*	46	0.000	9	0	0	17	0	0	
MD-174	P	BROAD CK	SFH	10	51	0	0		*	92	0.142	37	0	0	17	0	0	
MD-175	P	CALIBOGUE SOUND	SFH	3	55	0	0		D	124	0.000	37	0	0	18	0	0	
03050208120																		
MD-129	SS	GREAT SWAMP	FW	40	23	3	13	1000				20	0	0	7	0	0	
03050208130																		
MD-118	P	NEW RVR	SA	420	57	34	60	1106	I	166	5.966	55	0	0	19	0	0	

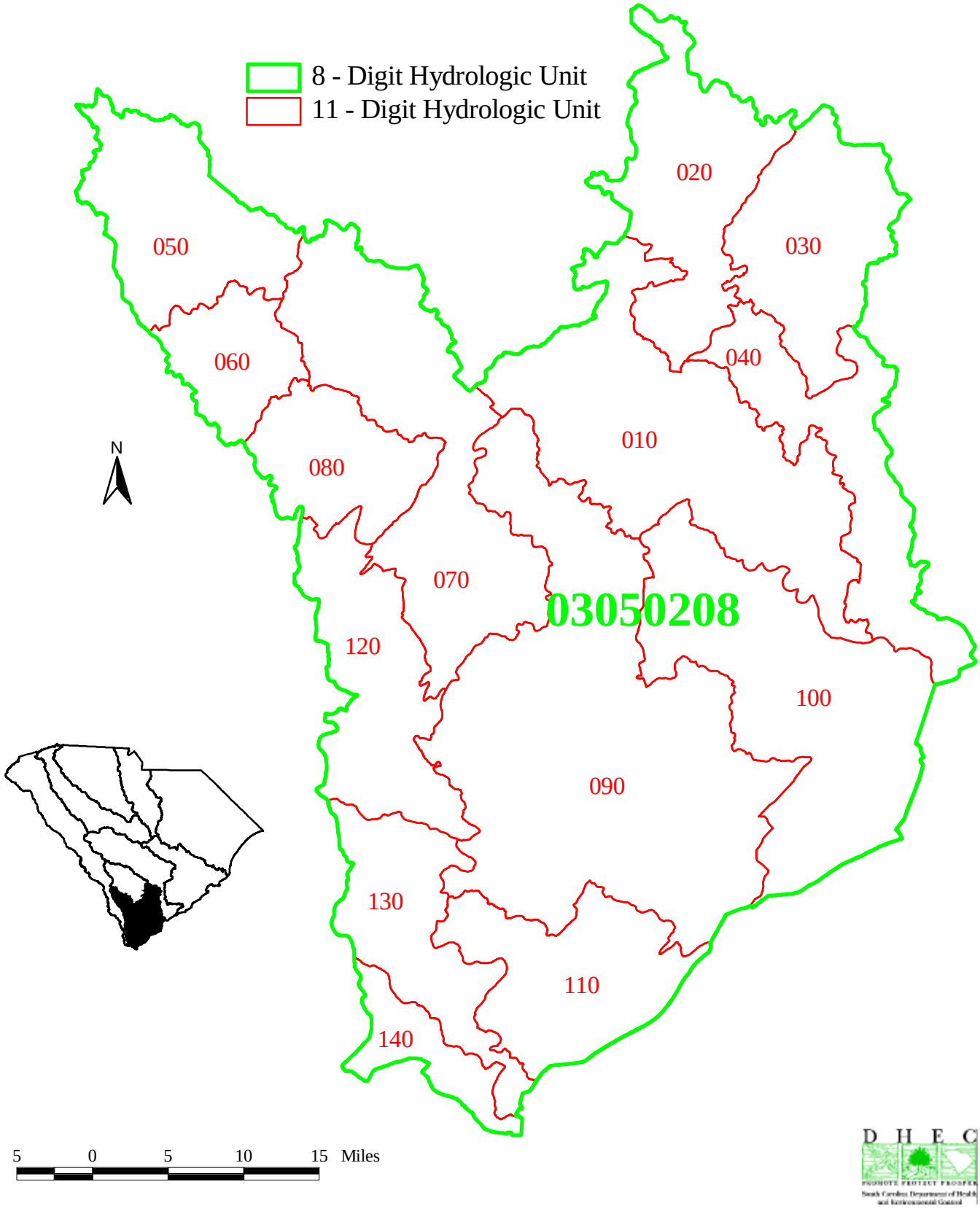
COMBAHEE RIVER/ASHEPOO RIVER/BROAD RIVER BASINS WATER QUALITY SUMMARY

STATION				CR	CR	CR	MEAN	CU	CU	CU	MEAN	PB	PB	PB	MEAN	HG	HG	HG
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	N	EXC.	%	EXC.	N	EXC.	%	EXC.	N	EXC.	%
03050208090																		
MD-007	P	POCOTALIGO RVR	SFH	19	0	0		19	0	0		19	0	0		19	0	0
MD-116	P	BROAD RVR	SFH	20	0	0		20	1	5	20	20	1	5	350	20	0	0
MD-172	S	BROAD RVR	SFH															
MD-117	S	CHECHESSEE RVR	SFH	1	0	0		1	0	0		1	0	0				
MD-176	SS	COLLETON RVR	ORW	16	0	0		16	0	0		16	0	0		16	0	0
MD-245	P	COLLETON RVR	ORW	18	0	0		18	1	6	50	18	0	0		18	0	0
MD-013	S	SKULL CK	SFH															
MD-001	S	BEAUFORT RVR	SA															
MD-002	S	BEAUFORT RVR	SA															
MD-003	P	BEAUFORT RVR	SA	21	0	0		21	0	0		21	0	0		21	0	0
MD-004	S	BEAUFORT RVR	SFH	9	0	0		9	0	0		9	0	0		9	0	0
MD-005	P	BEAUFORT RVR	SFH	19	0	0		19	0	0		19	0	0		18	0	0
MD-006	S	PORT ROYAL SOUND	SFH															
03050208100																		
MD-194	S*	WHALE BRANCH	SFH	7	0	0		7	0	0		7	0	0		7	0	0
MD-168	P	COOSAW RVR	SFH	19	0	0		19	1	5	20	19	0	0		19	0	0
03050208110																		
MD-016	SS	MAY RVR	ORW/SFH	17	0	0		17	0	0		17	0	0		17	0	0
MD-174	P	BROAD CK	SFH	17	0	0		17	0	0		17	0	0		18	0	0
MD-175	P	CALIBOGUE SOUND	SFH	18	0	0		18	0	0		18	0	0		18	0	0
03050208120																		
MD-129	SS	GREAT SWAMP	FW	7	0	0		7	0	0		7	0	0		7	0	0
03050208130																		
MD-118	P	NEW RVR	SA	19	0	0		19	0	0		19	0	0		19	0	0

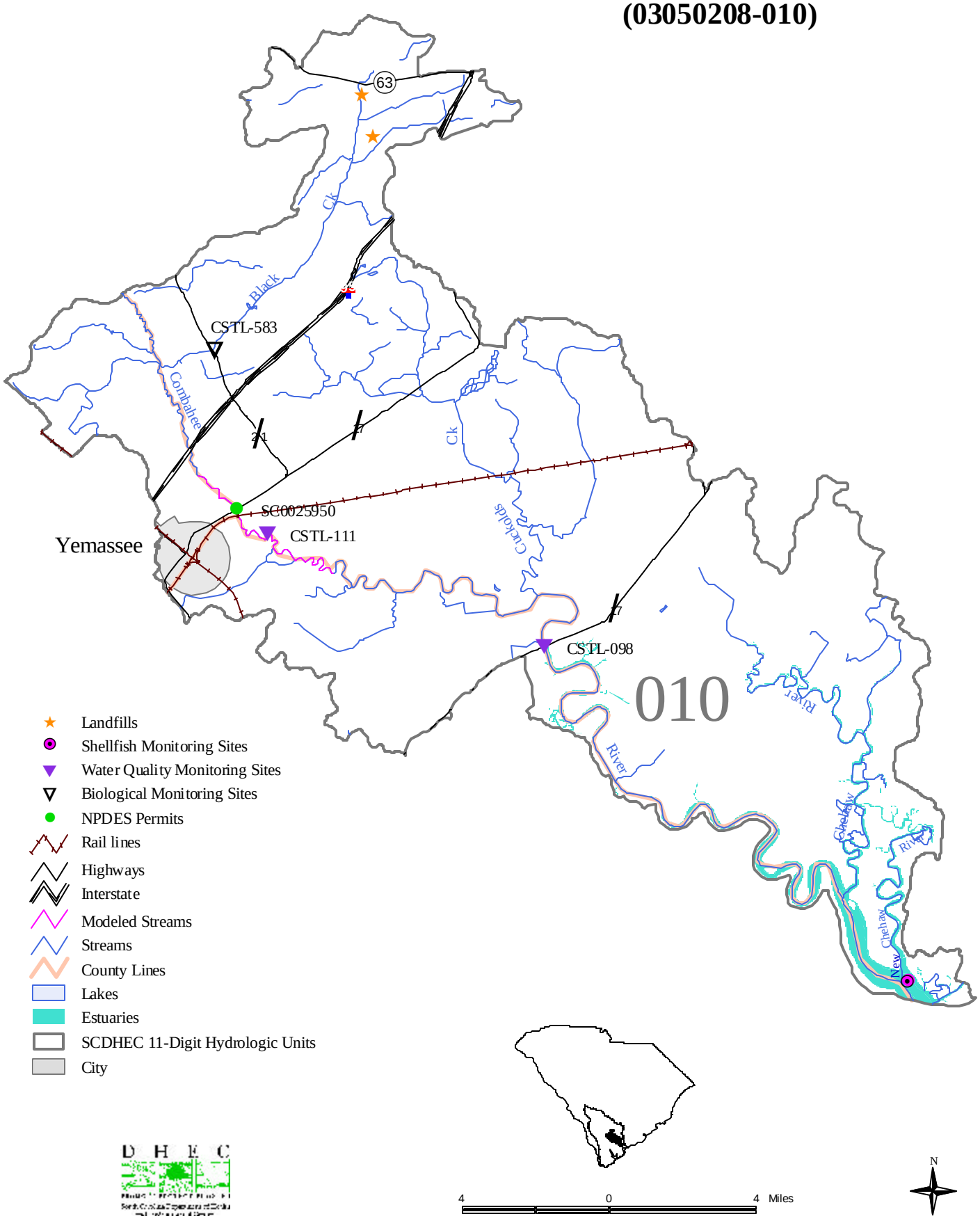
COMBAHEE RIVER/ASHEPOO RIVER/BROAD RIVER BASINS WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	NI N	NI EXC.	NI %	MEAN EXC.	ZN N	ZN EXC.	ZN %	MEAN EXC.
03050208090											
MD-007	P	POCOTALIGO RVR	SFH	19	0	0		19	0	0	
MD-116	P	BROAD RVR	SFH	20	0	0		20	0	0	
MD-172	S	BROAD RVR	SFH								
MD-117	S	CHECHESSEE RVR	SFH	1	0	0		1	0	0	
MD-176	SS	COLLETON RVR	ORW	16	0	0		16	0	0	
MD-245	P	COLLETON RVR	ORW	18	0	0		18	0	0	
MD-013	S	SKULL CK	SFH								
MD-001	S	BEAUFORT RVR	SA								
MD-002	S	BEAUFORT RVR	SA								
MD-003	P	BEAUFORT RVR	SA	21	0	0		21	0	0	
MD-004	S	BEAUFORT RVR	SFH	9	0	0		9	0	0	
MD-005	P	BEAUFORT RVR	SFH	19	0	0		19	0	0	
MD-006	S	PORT ROYAL SOUND	SFH								
03050208100											
MD-194	S*	WHALE BRANCH	SFH	7	0	0		7	1	14	390
MD-168	P	COOSAW RVR	SFH	19	0	0		19	0	0	
03050208110											
MD-016	SS	MAY RVR	ORW/SFH	17	0	0		17	0	0	
MD-174	P	BROAD CK	SFH	17	0	0		17	1	6	390
MD-175	P	CALIBOGUE SOUND	SFH	18	0	0		18	0	0	
03050208120											
MD-129	SS	GREAT SWAMP	FW	7	0	0		7	0	0	
03050208130											
MD-118	P	NEW RVR	SA	19	0	0		19	0	0	

Combahee/Ashepoo/Broad River Basin
Watershed Unit Index Map

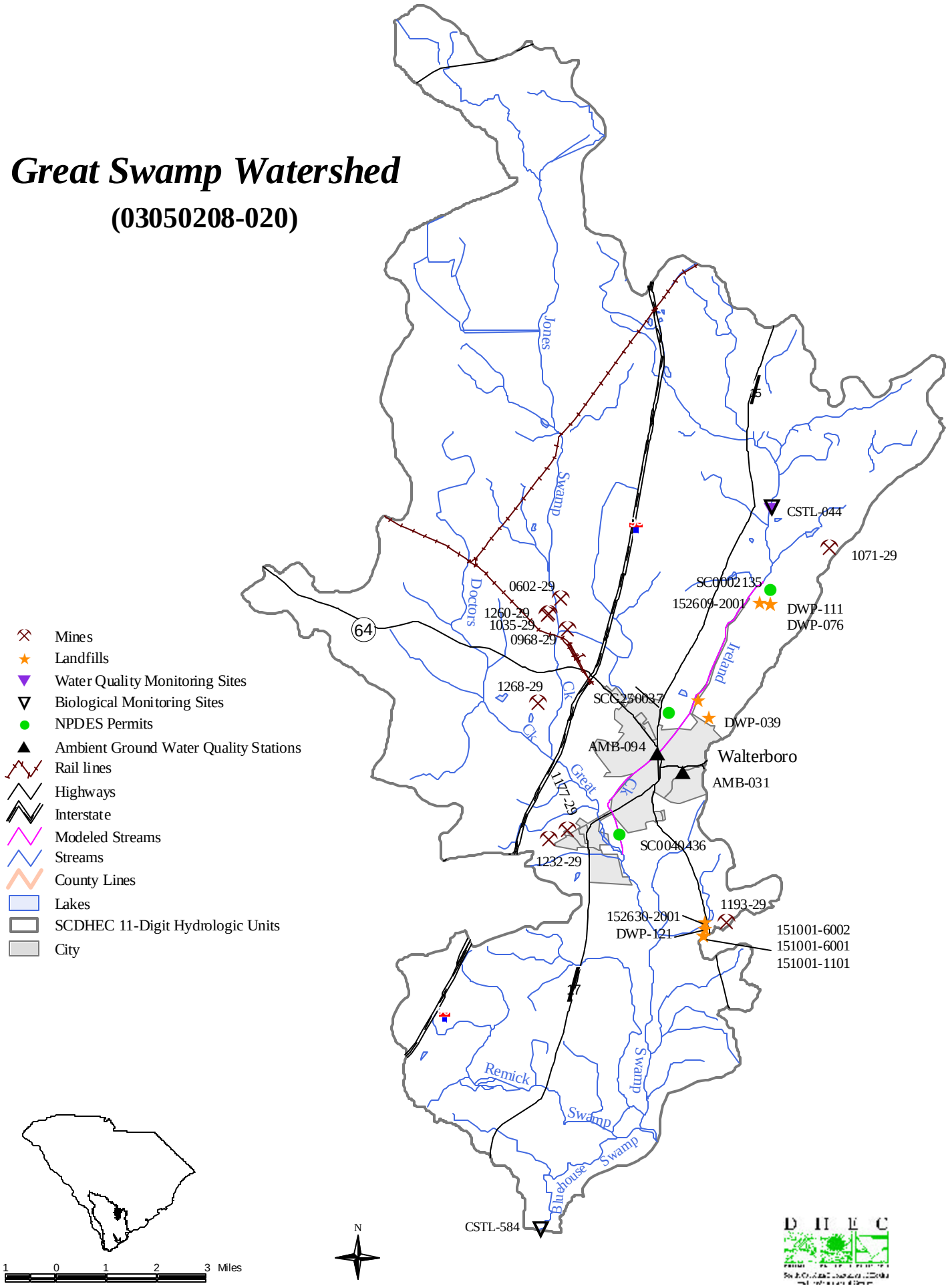


Combahee River Watershed
(03050208-010)



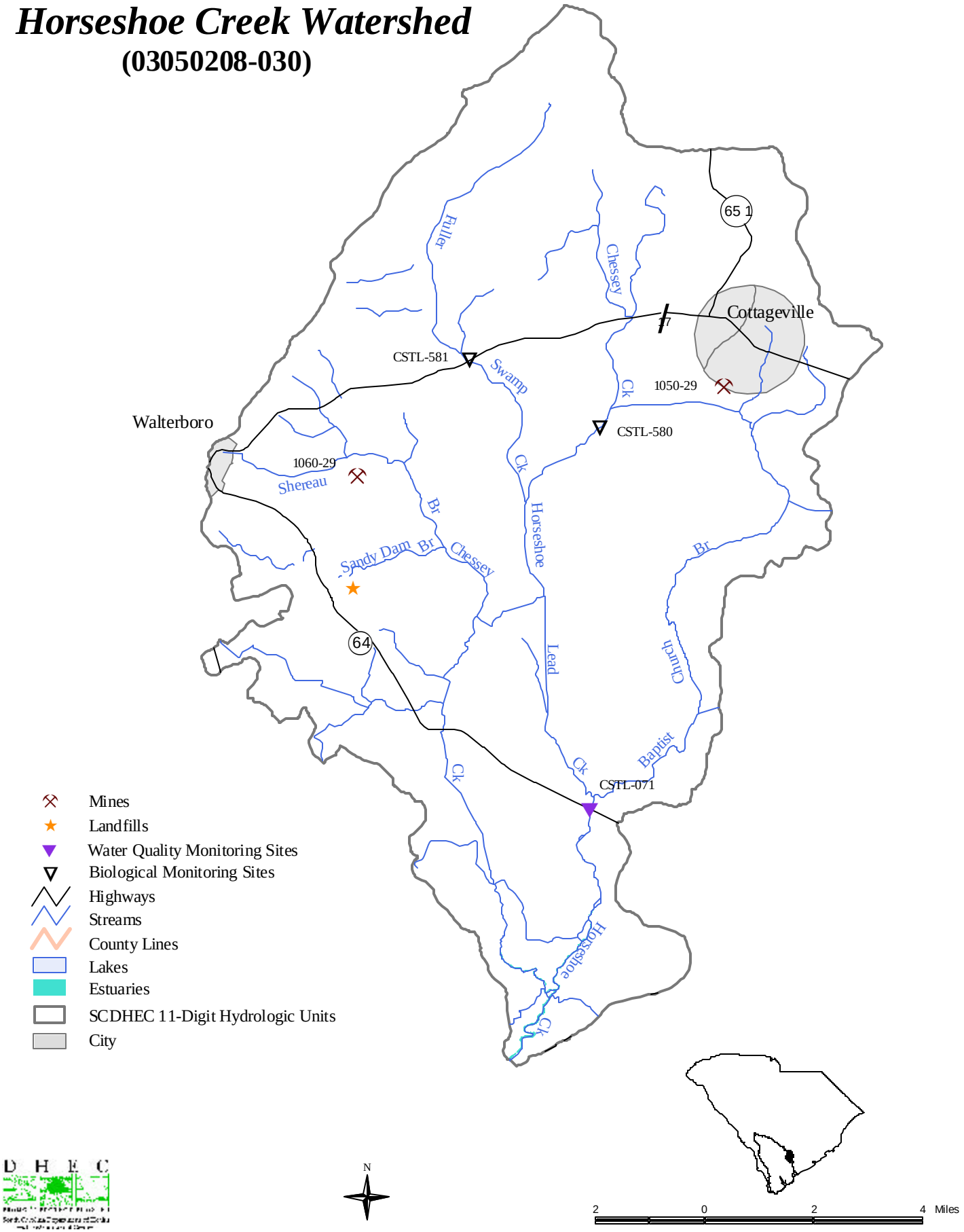
Great Swamp Watershed

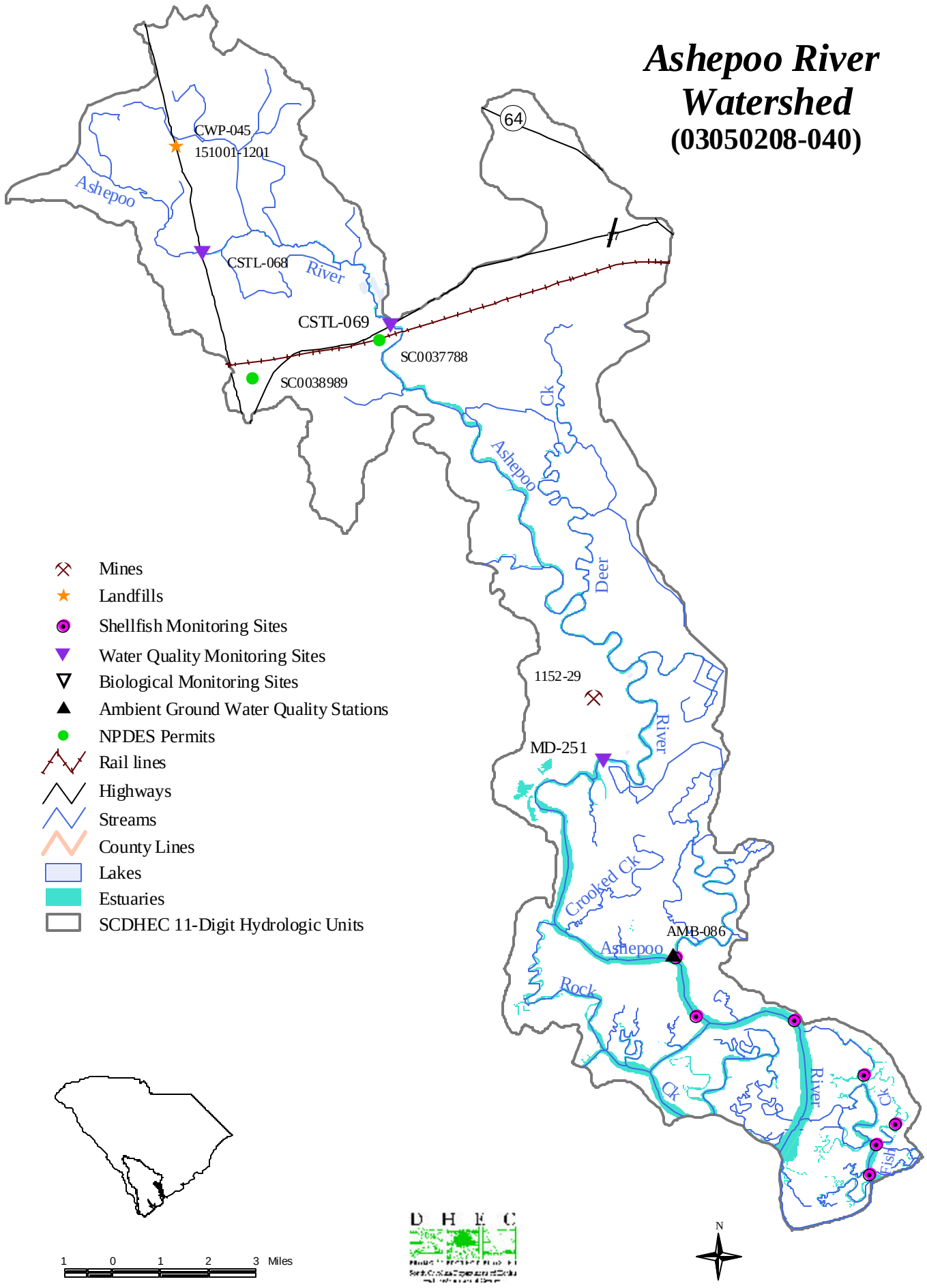
(03050208-020)



Horseshoe Creek Watershed

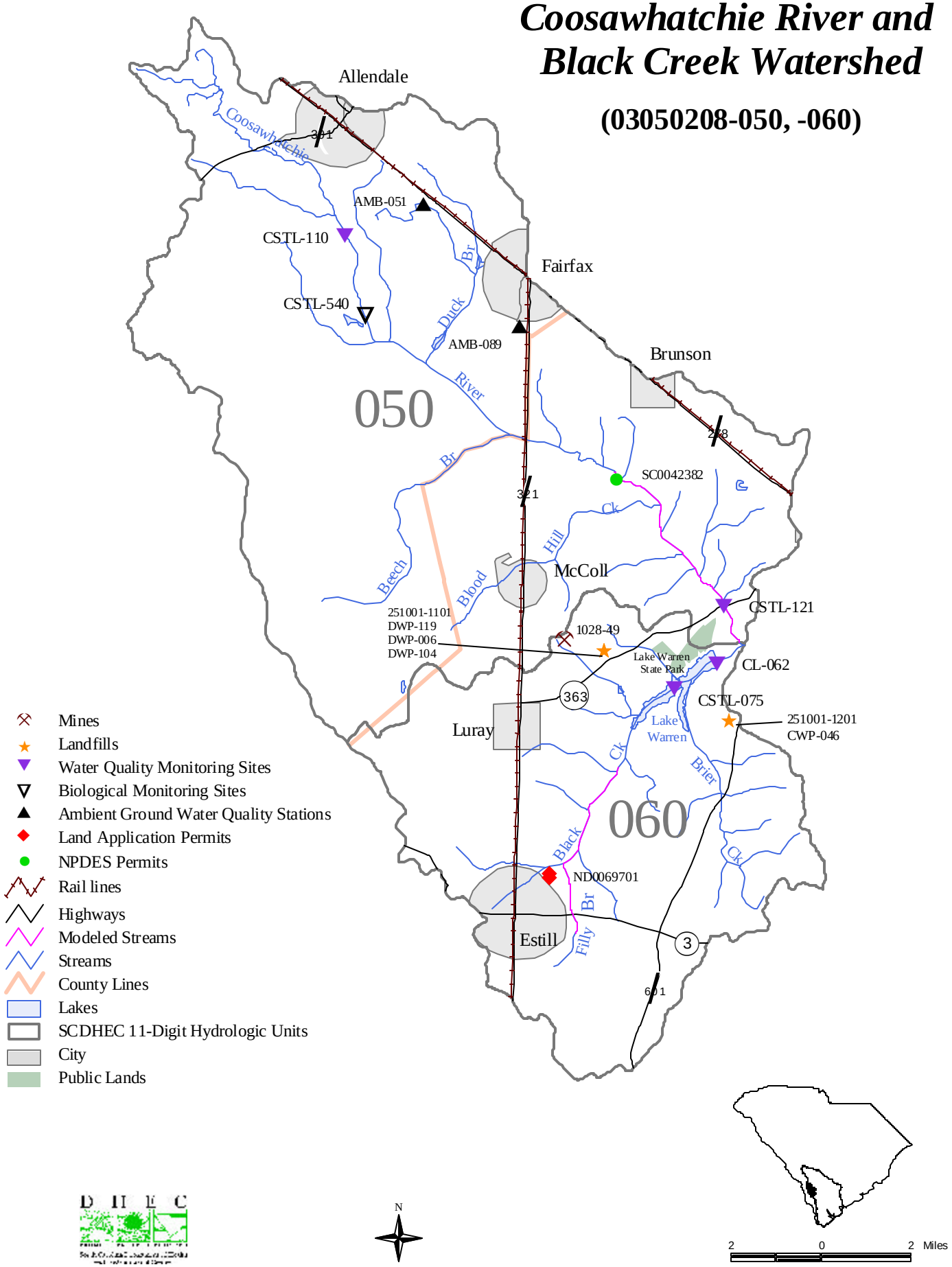
(03050208-030)



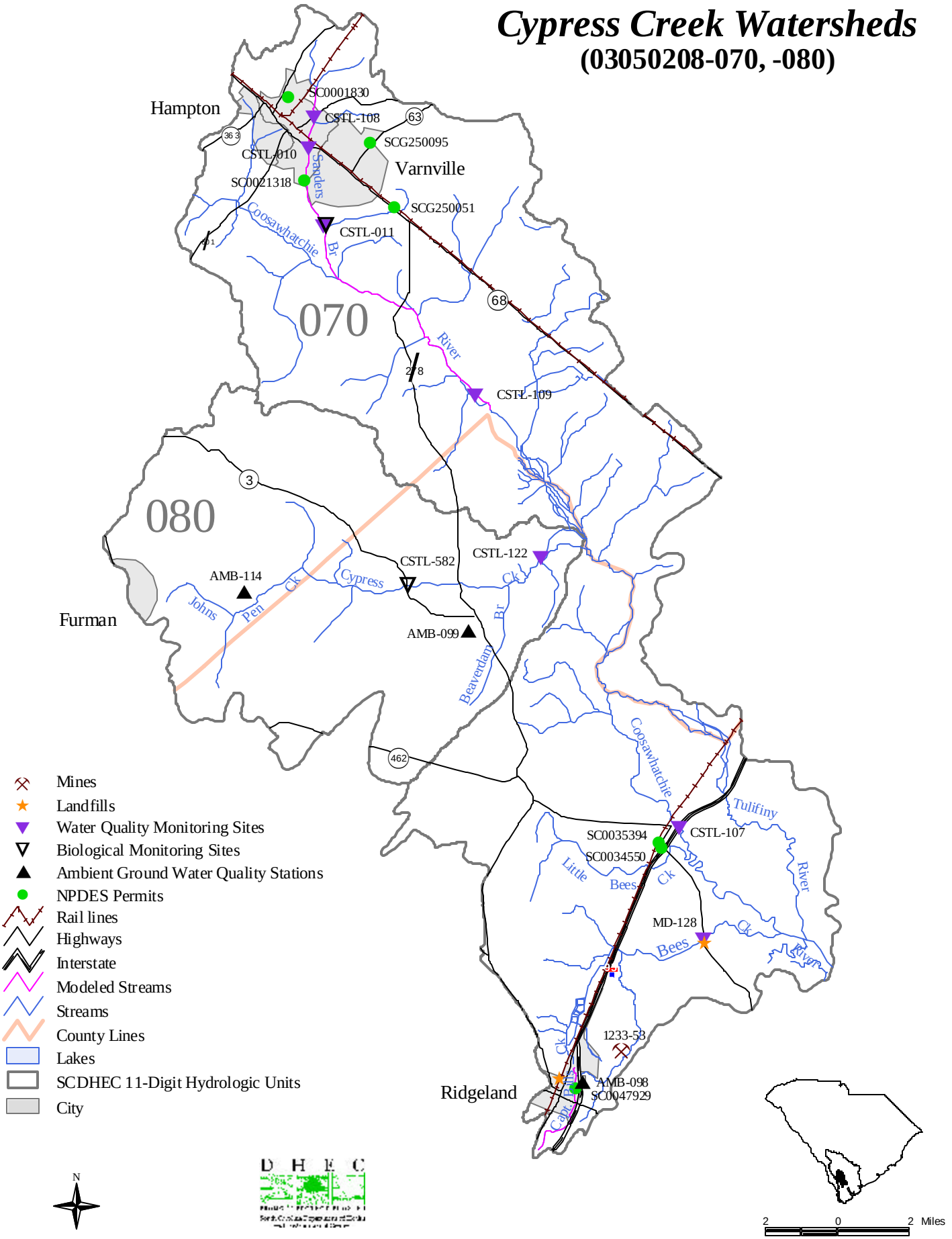

Ashepoo River Watershed
(03050208-040)
64
CWP-045
151001-1201
Ashepoo
CSTL-068
River
CSTL-069
SC0037788
SC0038989
Ck
Ashepoo
Deer
1152-29
River
MD-251
Crooked Ck
AMB-086
Ashepoo
Rock
Ck
River
Ck
Ck
Fish
Mines
Landfills
Shellfish Monitoring Sites
Water Quality Monitoring Sites
Biological Monitoring Sites
Ambient Ground Water Quality Stations
NPDES Permits
Rail lines
Highways
Streams
County Lines
Lakes
Estuaries
SCDHEC 11-Digit Hydrologic Units
1 0 1 2 3 Miles
N

Coosawhatchie River and Black Creek Watershed

(03050208-050, -060)

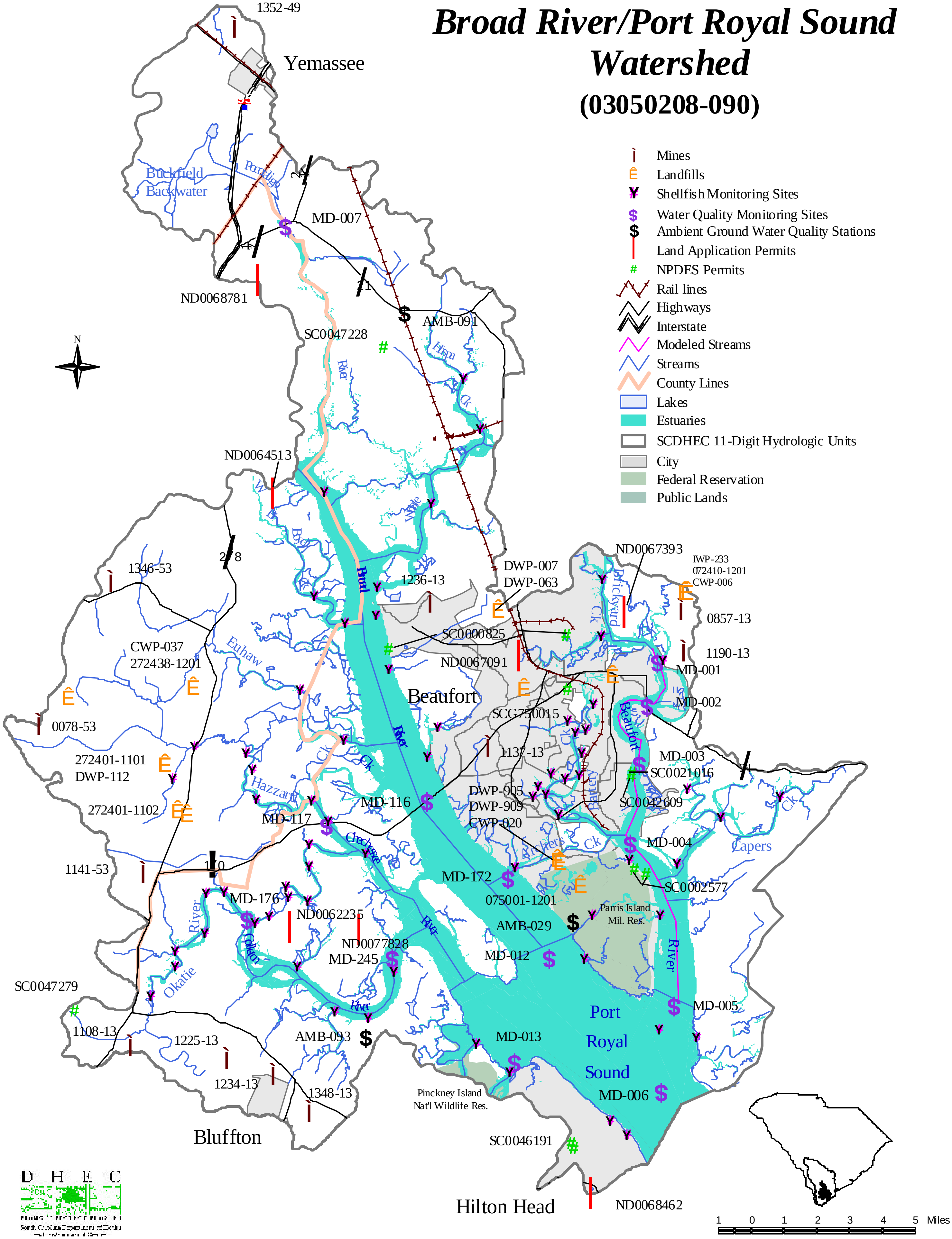


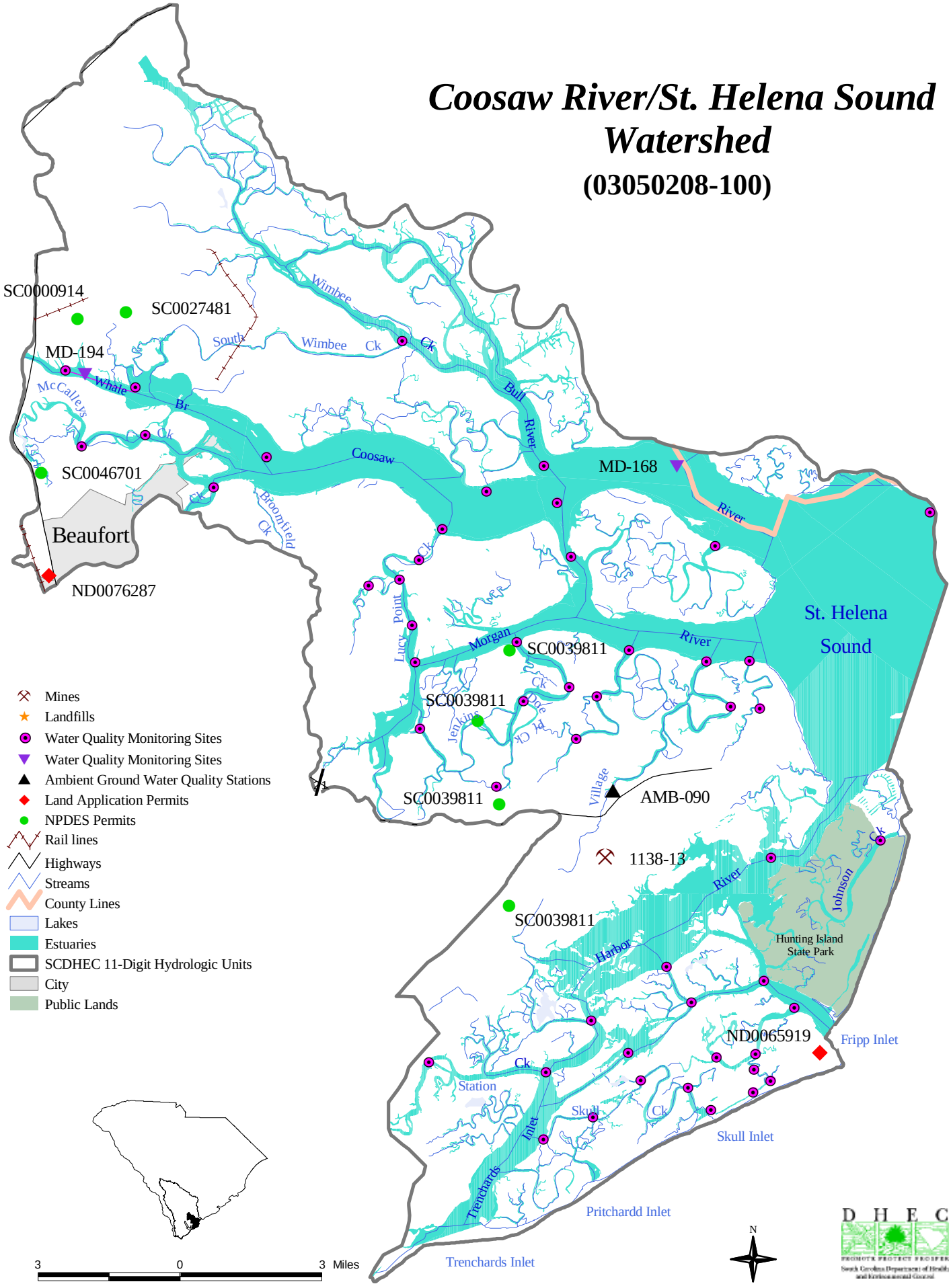
Coosawhatchie River and Cypress Creek Watersheds
(03050208-070, -080)



Broad River/Port Royal Sound Watershed

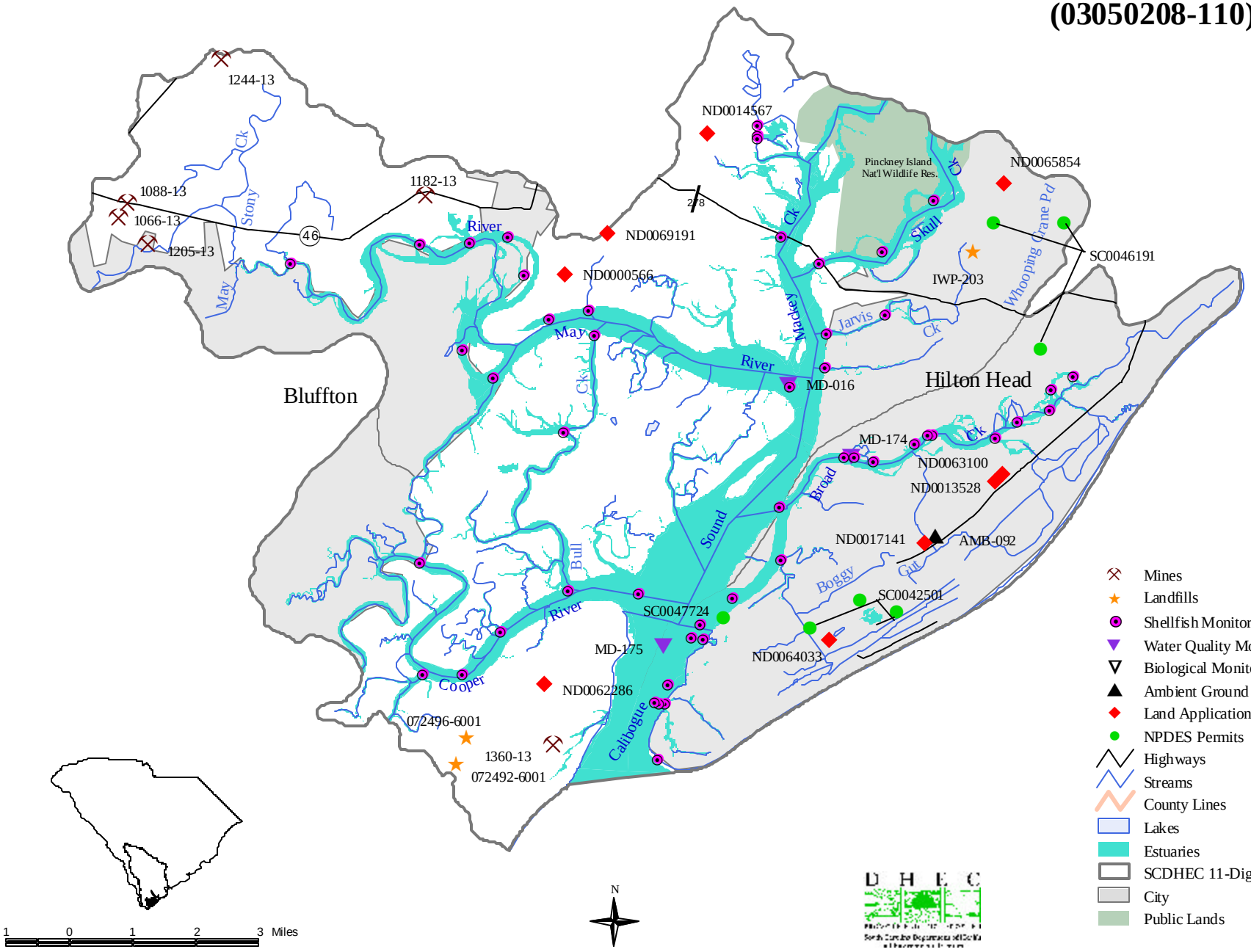
(03050208-090)

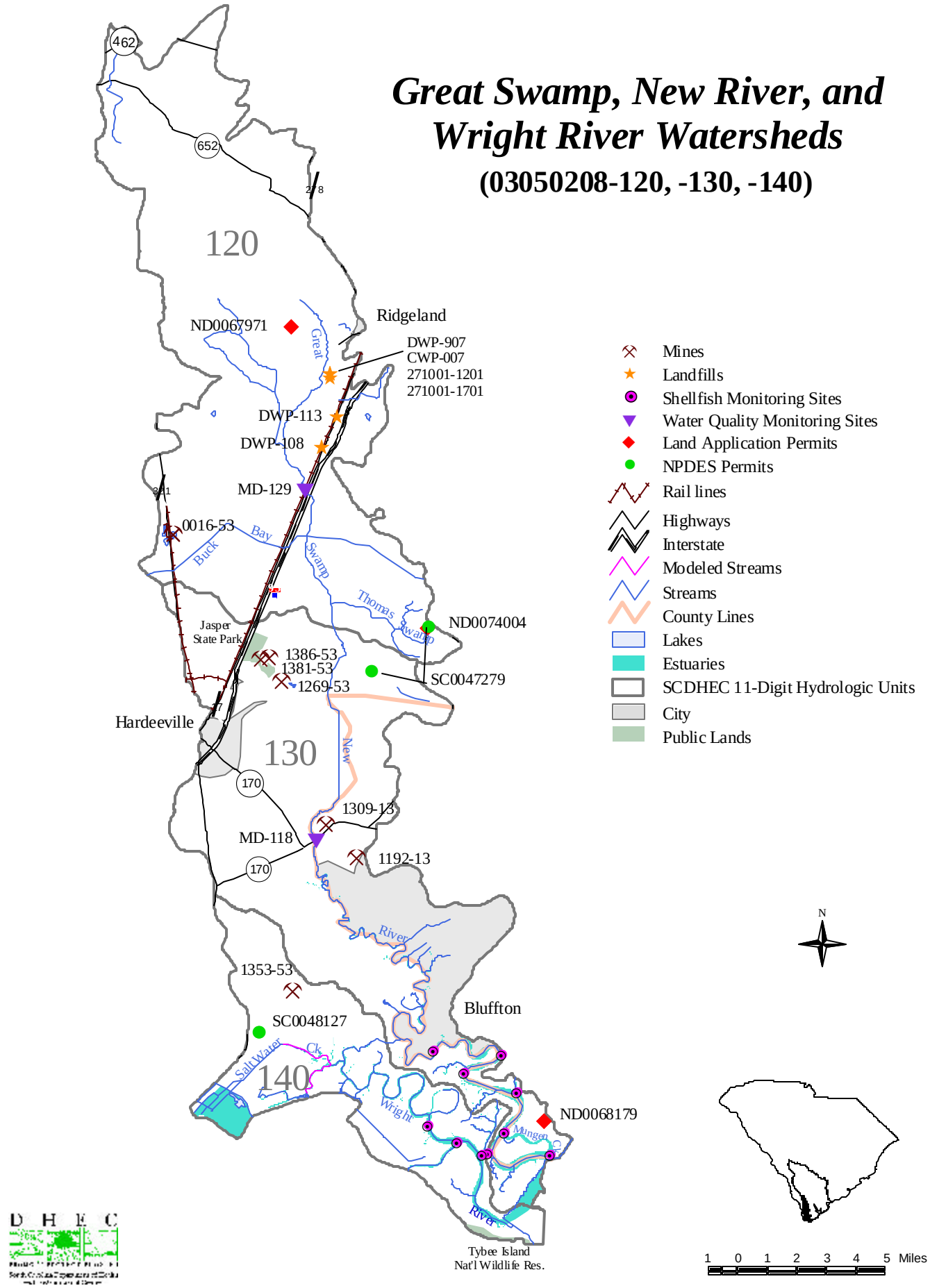



Coosaw River/St. Helena Sound Watershed
(03050208-100)
SC0000914
SC0027481
MD-194
SC0046701
ND0076287
Beaufort
MD-168
SC0039811
SC0039811
SC0039811
AMB-090
1138-13
SC0039811
ND0065919
Fripp Inlet
Skull Inlet
Pritchardd Inlet
Trenchards Inlet
St. Helena Sound
Hunting Island State Park
Wimbee Ck
South Wimbee Ck
Whale Br
McCalleys Ck
Coosaw River
Bull River
Broomfield Ck
Lucy Point Ck
Morgan River
Jenkins Ck
Village Ck
Johnson Ck
Harbor River
Station Ck
Skull Ck
Trenchards Inlet
Mines
Landfills
Water Quality Monitoring Sites
Water Quality Monitoring Sites
Ambient Ground Water Quality Stations
Land Application Permits
NPDES Permits
Rail lines
Highways
Streams
County Lines
Lakes
Estuaries
SCDHEC 11-Digit Hydrologic Units
City
Public Lands
3 0 3 Miles
N
D H E C

May River/Calibougue Sound Watershed

(03050208-110)




Great Swamp, New River, and Wright River Watersheds
(03050208-120, -130, -140)
462
652
278
120
ND0067971
Ridgeland
DWP-907
CWP-007
271001-1201
271001-1701
DWP-113
DWP-108
MD-129
321
0016-53
Buck
Bay
Swamp
Thomas
Swamp
Jasper
State Park
ND0074004
1386-53
1381-53
1269-53
SC0047279
Hardeeville
17
130
New
170
1309-13
MD-118
1192-13
170
River
1353-53
Bluffton
SC0048127
Salt Water
Ck
140
Wright
River
ND0068179
Mungen
Ck
Tybee Island
Nat'l Wildlife Res.
Mines
Landfills
Shellfish Monitoring Sites
Water Quality Monitoring Sites
Land Application Permits
NPDES Permits
Rail lines
Highways
Interstate
Modeled Streams
Streams
County Lines
Lakes
Estuaries
SCDHEC 11-Digit Hydrologic Units
City
Public Lands
N
1 0 1 2 3 4 5 Miles

Waterbody Index

Facility Index

Facility Permit Number Index

Landfills

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Promoting and protecting the health of the public and the environment.

CR-005810 11/03